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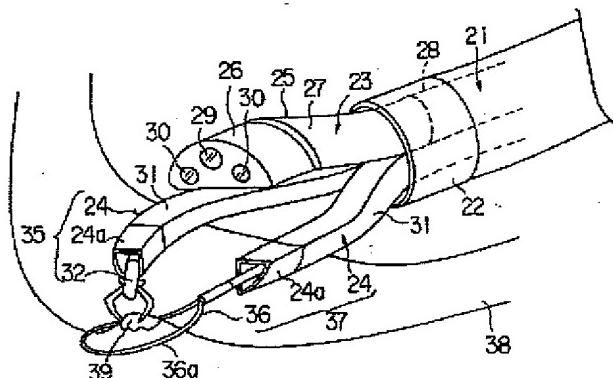
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(54) 【発明の名称】 内視鏡治療装置

(57) 【要約】

【課題】 本発明は、内視鏡による臓器内側から処置することができる対象を拡大し、しかも、従来、特に難しかった、体腔の奥の壁の大きい範囲の病変部や深く浸潤した病変部の処置についても容易に行うことが可能な内視鏡治療装置を提供することを目的とする。

【解決手段】 体腔内に挿入される器具誘導用案内管21の内孔に、処置用内視鏡23と処置具ユニット35, 37が進退自在に挿入され、上記処置用内視鏡23と上記処置具ユニットの横断面形状が上記器具誘導用案内管の内孔の径よりもわずかに小さい径の弧の部分を持ち、上記内視鏡と上記処置具ユニットを組み合わせて上記器具誘導用案内管に入れる際、その組み合せた全体の横断面形状が上記器具誘導用案内管の内孔の径よりわずかに小さい径を有する形状に構成し、上記器具誘導用案内管に処置用内視鏡と処置具ユニットを挿入して使用する。



## 【特許請求の範囲】

【請求項1】体腔内に挿入される器具誘導用案内管と、上記器具誘導用案内管の内孔に進退自在に挿入される少なくとも一つの処置用内視鏡と、上記器具誘導用案内管の内孔に進退自在に挿入される少なくとも一つの処置具ユニットとを具備してなり、上記内視鏡と上記処置具ユニットのうち少なくとも一つのものの横断面の外形状が上記器具誘導用案内管の内孔の寸法よりもわずかに小さい径の弧の部分を持ち、上記内視鏡と上記処置具ユニットを組み合わせて上記器具誘導用案内管に入る際にその組み合せた全体の横断面の最長寸法が上記器具誘導用案内管の内孔の径よりわずかに小さい寸法を有する形状になるように構成したことの特徴とする内視鏡治療装置。

#### 【発明の詳細な説明】

[0001]

【発明の属する技術分野】本発明は、体腔内に生じた病変部を経内視鏡的に治療する内視鏡治療装置に関する。

[0002]

【従来の技術】胃や大腸などの消化器系臓器の体腔内壁に生じた病変部を治療する場合、まず経内視鏡的に治療する方法が考えられる。これは体腔内に内視鏡を挿入し、その内視鏡の処置具挿通用チャンネルを通じて手術用処置具を体腔内まで挿入して体腔内から外科的に手術を行うものである。

【0003】しかし、この経内視鏡的外科手術を行う場合には病変部が大きかったり、病変部が壁部内深くまで浸潤していたりすると手に負えないことが多い。このような場合には体腔の外から処置する外科手術に移行し、腹腔鏡下手術や開腹手術を行うことになる。

【0004】ところで、従来の内視鏡的外科手術において用いられる内視鏡の挿入部1は図11で示すように、可撓管部2の先端に湾曲管3を介して先端部4を連結した構成のものであり、この挿入部1内には処置具挿通用チャンネル5が全長にわたり形成されている。先端部4の先端面には処置具挿通用チャンネル5の先端が開口すると共に、この開口に並んで、観察窓6及び照明窓7が配設されている。

【0005】そして、胃8の内壁に生じた病変部9を治療する場合、まず胃8内に挿入した挿入部1の処置具挿通用チャンネル5を通じて把持鉗子11と高周波スネア切開具12を導入し、胃8の内側から内視鏡下で病変部9を外科的に処置する。

[0006]

【発明が解決しようとする課題】しかしながら、内視鏡の挿入部1は柔らかいものであるため、膨らませた胃8の中で空中に浮かせた状態で挿入部1を保持しようとすると先端部4がふらついてしまい、不安定な状態になってしまう。従って、挿入部1を胃の内壁面に沿わせて押し進め、胃壁で挿入部1を位置決め保持しながら先端部

4を病変部9に近づけ、処置作業を行う方法が採られる。このため、胃の壁面沿いの横から病変部9の部分を観ることになり、その結果、病変部9の全体像を把握することは困難な状況にあるため、病変部9の処置作業を難しくしていた。しかも、観察系と処置系が近くなるので、病変部9の全体を観察しようとして、内視鏡の先端部4を病変部9から離すと、処置具の先端が遠くなり、処置具の先端がふらついてしまい、病変部9がつかめなくなるなどの不都合が生じる。逆に処置具がふらつかないようにして挿入部1の先端を病変部9に近づけると、画角が狭くなるので病変部9の一部しか見えないことになる。

【0.007】加えて、ここで使用する処置具は内視鏡に具備する処置具挿通用チャンネル5に挿通してのみ使用するものであるため、処置具全体が細いものである必要があり、その結果、処置具は腰がなくなる。このため、大きい範囲の腫瘍や、大きいポリープなどを処置するには能力不足になる。

【0008】そこで、観察用内視鏡と処置具を別々に体腔内に挿入すれば良いように考えられるが、そうすると、内視鏡の視野範囲から処置具が外れてしまい思うような処置操作ができないという重大な不都合が起きる。

【0009】また、オーバーチューブやスライディングチューブのような案内管を用いて、処置具と内視鏡が離れてしまうことのないようにすると、1本の案内管内に2本のものを挿入することになる結果、いわゆるブタ鼻の状態になり、内視鏡の外径と処置具の外径の外接円以上の内径がある太い案内管が要ることになる。しかし、実際には体腔には自ずとその内径に制限が有るので、案内管の方の外径は太くすることが出来ず、内視鏡も処置具も細い外径のものしか使用できないので、観察能力と処置能力が落ちてしまうという不都合が起きる。特に大掛かりな手術を要する大きい病変部9や深く浸潤した病変部9を処置することが難しくなる。

【0010】一方、後述する図12で示すように、1本の処置具挿通用チャンネル18を通じて2本の処置具、例えば把持鉗子11と高周波スネア切開具12を導入し、体腔内に突き出すようにした場合、内視鏡の先端部4から突き出した2本の処置具の間隔が狭くなり、内視鏡の先端部4の前方に位置する病変部9を処置することが非常に難しいものとなる。

【0011】また、図11で示すように、内視鏡に2本の処置具挿通用チャンネル5を設けて、その別々のチャンネル5を通じて2つの処置具を個別に挿通する形式の場合であっても内視鏡の先端部4に設けた2本のチャンネル5の間隔が元々狭いことから突き出す処置具の間隔が狭くなることには本質的に変わりはなく、特に大掛かりな手術を要する大きい病変部9や深く浸潤した病変部9を処置することが難しい。

【0012】さらに、内視鏡の処置具挿通用チャンネル

5, 18に処置具を挿通して病変部9を処置しようとなれば、必然的に病変部9と先端部4の間の狭い領域に処置具が突き出されることになる結果、その処置具が観察しようとする病変部9の視野を妨げることになる。しかも、2つの照明窓7から出射する照明光が処置具の表面に当り光ってしまい、病変部9を見にくくなる。逆に1つの照明窓7から一つの照明光を出射させるようになると、処置具の影ができて影側の画像が見にくくなる。

【0013】図12は腸管15の内壁に生じた病変部9を処置する例を示すものであり、この場合に使用される内視鏡は観察方向が直視のものであり、その挿入部1には径の大きい1本の処置具挿通用チャンネル18を有する。この場合でも、病変部9を正面視し難く、処置がやりにくい。また、1本の処置具挿通用チャンネル18を通じて複数の処置具を挿通するため、各処置具の先端部を小さくする必要があり、また、その後方部位のシース部分も細いものが必要である。このため、一般に腰が弱くなり、特に大掛かりな手術を要する大きい病変部9や深く浸潤した病変部9を処置することが難くなる。

【0014】尚、特願昭53-43875号では内視鏡の挿入案内用主管に処置具挿通用チャンネルと、可撓性の光学視管の先端部を挿入案内用主管の軸外側方に偏倚せしめる手段を設け、処置性能を向上したもののが記されている。

【0015】しかしながら、この特願昭53-43875号のものでは内視鏡の挿入部の外径に近い、大型の処置具を通すことができない。また、内視鏡の鉗子挿通用チャンネルを通過する処置具の柄の部分は細かったり、柔らかかったりして、処置をする大きな力を先端に伝えることができず、処置性能をより向上させるには不十分であった。

【0016】また、実開昭51-149985号公報には内視鏡の外壁に誘導路を付設し、その誘導路を通じて外筒管を体内に挿入し、この外筒管内に縫合器を挿通するようにしたものが提案されている。しかしながら、この実開昭51-149985号公報のものにあっては、内視鏡と外筒管が誘導路によって連結されているので、外形が太く複雑な形のものとなり、内視鏡の挿入性が劣るものであった。

【0017】本発明は上記各事情に着目してなされたものであり、その目的とするところは、内視鏡による臓器内側から処置することができる対象を拡大し、腹腔鏡下手術や開腹手術による臓器外側からの処置を極力避け得ると共に、従来、特に難しかった、体腔の奥の壁の大きい範囲の病変部や深く浸潤した病変部の処置についても容易に行うことが可能であり、その結果、患者の入院期間及び費用、苦痛、傷痕、ガン細胞の拡散などの負担やリスクを軽減することにある。

【0018】

【課題を解決するための手段及び作用】本発明の内視鏡

治療装置は、体腔内に挿入される器具誘導用案内管と、上記器具誘導用案内管の内孔に進退自在に挿入される少なくとも一つの処置用内視鏡と、上記器具誘導用案内管の内孔に進退自在に挿入される少なくとも一つの処置具ユニットとを備してなり、上記内視鏡と上記処置具ユニットのうち少なくとも一つのものの横断面の外形状が上記器具誘導用案内管の内孔の寸法よりもわずかに小さい径の弧の部分を持ち、上記内視鏡と上記処置具ユニットを組み合わせて上記器具誘導用案内管に入る際にその組み合わせた全体の横断面の最長寸法が上記器具誘導用案内管の内孔の径よりもわずかに小さい寸法を有する形狀になるように構成したことを特徴とするものである。

【0019】そこで、本発明の内視鏡治療装置を使用する場合、例えば予め体腔内に挿入した内視鏡挿入部の外周に上記器具誘導用案内管を被嵌し、この後、体腔内にその内視鏡挿入部を挿入し、続けて、その内視鏡挿入部に沿わせて器具誘導用案内管を体腔内に挿入する。次に、内視鏡を一旦引き抜き、以下の処置用内視鏡と処置具ユニットを挿入して手術を行う。

### 【0020】

【発明の実施の形態】【第1実施形態】図1を参照して本発明の第1実施形態を説明する。

【0021】(構成) 図1中、21は略円筒形状に形成された器具誘導用案内管であり、この器具誘導用案内管21は図示しない内視鏡の挿入部の外周に被嵌してその内視鏡の挿入部をガイドとして体腔内に誘導される。器具誘導用案内管21は可撓性のある長尺な管状部材によって形成されている。器具誘導用案内管21の先端には硬質の補強管22が取着されている。また、器具誘導用案内管21はその補強管22を含めて内外の径が全長にわたり等しく形成されている。

【0022】上記器具誘導用案内管21の内孔には処置操作の観察を目的として特別に作られた1本の処置専用内視鏡23(以下、処置用内視鏡と呼ぶ)と、2本の処置用案内管24がそれぞれ独立的に挿入されるようになっている。これら3つの器具は一緒または個別に器具誘導用案内管21内に進退自在に挿入配置される。また、3つの器具の横断面の外形状(横断面形状とも呼ぶ)はその総和の横断面形状が略円形になり、それらの器具の直線部が、近接(接触する場合を含む)するよう密集して配置される充填した関係で組み合わされるよう構成されている。そして、上記3つの器具のうち少なくとも一つのものの横断面の外形状が上記器具誘導用案内管21の内孔の寸法よりもわずかに小さい径の弧の部分を持ち上記3つの器具を組み合わせて上記器具誘導用案内管21に入れる際にその組み合わせた全体の横断面の最長寸法が上記器具誘導用案内管21の内孔の径よりもわずかに小さい寸法を有する形狀になるように構成されている。

【0023】上記処置用内視鏡23の挿入部25は先端

部26と湾曲部27と可撓管部28とからなり、この挿入部25の横断面形状はその略全長にわたり同じく半円形に形成されている。挿入部25の横断面形状における円弧部の半径は上記器具誘導用案内管21の内孔の半径よりも僅かに小さく形成され、上記挿入部25は器具誘導用案内管21の内孔の半円の領域に略密に配置され、前後に進退自在に挿入される。

【0024】処置用内視鏡23の先端部26には一般的な内視鏡と同様に観察手段と照明手段が組み込まれ（共に図示せず）、先端部26の先端面にはその観察手段の観察レンズ29と、その照明手段の照明レンズ30が配設されている。

【0025】各処置具用案内管24は全長にわたりその横断面形状が円の1/4の扇形である可撓性のある長尺な管状部材によって形成されており、これらの処置具用案内管24の先端には硬質の補強管24aが取着されている。また、処置具用案内管24はその補強管24aを含めて略全長にわたり内外の径が等しく形成されている。各処置具用案内管24の横断面形状における円弧部の半径は上記器具誘導用案内管21の内孔の半径より僅かに小さい。そして、2つの処置具用案内管24を組み合わせることによりその組み合わせた全体の横断面形状が略半円形になり、上記器具誘導用案内管21の内孔の半円の領域に略密に配置され、かつ上記器具誘導用案内管21内に全体及び個別的に前後に進退自在に挿入される。

【0026】以上のようにして、上記器具誘導用案内管21の内孔に配置される1本の処置用内視鏡23と2本の処置具用案内管24はその3本のものの総和の横断面形状が略円形になり、それらの接合する内側の直線部が近接して比較的密に組み合わせられて上記器具誘導用案内管21内に全体及び個別的に進退自在に配置されるようになっている。

【0027】各処置具用案内管24はいずれも左右方向の2方向または上下左右方向の4方向に湾曲させる湾曲機能を有する湾曲部31を備えてなり、その湾曲部31は手元側での操作により強制的に湾曲させられることによって処置具用案内管24の先端部分を上下左右に移動したり処置具用案内管24の先端の向きを変えたりすることができるようになっている。

【0028】また、処置具用案内管24の湾曲部31は種々の偏倚または変向を得るために複数の湾曲部分を組み合わせて構成しても良い。例えば手元側部分を左右に広がる向きに湾曲し、先端側部分を内側に向ける湾曲を行うようにすると、図1で示すように病変部39を処置する上で都合が良い。

【0029】各処置具用案内管24には把持鉗子32や高周波スネア切開具36等の治療等に必要な処置具が個別的に挿通されるようになっている。本実施形態では、左側の処置具用案内管24に把持鉗子32を挿入して1

つの処置具ユニット（処置装置）35を構成し、右側の処置具用案内管24に高周波スネア切開具36を挿入して別の処置具ユニット（処置装置）37を構成している。

【0030】尚、上記各処置具ユニットは把持鉗子32や高周波スネア切開具36等の処置具が単独の場合も含むものとする。

【0031】（作用・効果）この第1実施形態の内視鏡治療装置を用いて胃38の内壁に生じた病変部39を切除する内視鏡的外科手術を行う場合について説明する。

まず、胃38内に比較的太径の図示しない、例えば軟性内視鏡を挿入し、この内視鏡の挿入部に予め外装しておいた器具誘導用案内管21を、その軟性内視鏡の挿入部に沿ってスライドしながらその先端部分が病変部39の近くになるまで誘導する。この後、器具誘導用案内管21の挿入した後の姿勢を維持しながら上記内視鏡のみを抜き取る。

【0032】次に、平面部分が互いに合うようにして1本の処置用内視鏡23と2本の処置具用案内管24を円柱状に束ね、これらと一緒に器具誘導用案内管21の内孔に挿入する。そして、器具誘導用案内管21の先端開口から処置用内視鏡23と処置具用案内管24の先端部分を突き出すようにする。この後、右側の処置具用案内管24には把持鉗子32を挿通し、左側の処置具用案内管24には高周波スネア切開具36を挿入する。

【0033】ついで、図1で示すように、右側の処置具用案内管24と左側の処置具用案内管24に挿入した把持鉗子32と高周波スネア切開具36を進退操作し、また、各処置具用案内管24の湾曲機能を利用し、その案内管24の湾曲部31を適宜湾曲操作することにより、把持鉗子32と高周波スネア切開具36の先端の位置決め操作を行う。

【0034】このような操作を行うことにより病変部39に高周波スネア切開具36のスネアワイヤ36aのループ部分を掛けると共に、把持鉗子32により病変部39を把持して隆起させながら高周波スネア切開具36のスネアワイヤ36aで病変部39の根元部分を絞り込み、そのスネアワイヤ36aに高周波を通電して病変部39を切除する。

【0035】この際、処置具ユニット35、37から独立した処置用内視鏡23により病変部39の状態と把持鉗子32及び高周波スネア切開具36の位置や動きを観察しながら操作を行うことができるため、処置作業が容易であり、かつ迅速に処置することができる。

【0036】以上の如く、処置用内視鏡23による観察機能及び湾曲機能と、処置具ユニット35、37による処置機能及び湾曲機能とが独立しているために、処置用内視鏡23の先端部26を病変部39に対して斜め上に位置させることができる。また、病変部39と処置具ユニット35、37の動きや位置等を観察して処置操作の

全体像を確実に把握することができる。しかも、器具誘導用案内管21によって各器具の位置が安定的に保持されるので、病変部39の処置作業を確実かつ迅速に行うことができる。

【0037】勿論、処置具ユニット35、37の位置が自由に選べ、必要に近接させることがないので、処置用内視鏡23の観察視野を妨げることがない。また、観察しようとする視野が処置具ユニット35、37の影に入ったりすることを極力避け得るので、明瞭な画像で観察することができる。

【0038】また、処置具ユニット35、37の案内管24の方にも湾曲機能が付いているので、2本の処置具の距離を十分に離して使用することができる。従って、操作性が良いと共に、特に大掛かりな手術となる大きい病変部39や深く浸潤した病変部39であっても容易に対処することが可能である。

【0039】さらに、左右横方向に処置具を動かせるので、例えば、体壁を横方向に伸ばして、伸びた箇所を電気メスで切開するなどの様々な処置にも適用が可能なものである。

【0040】【第2実施形態】図2を参照して本発明の第2実施形態を説明する。

【0041】(構成) 本実施形態では上記器具誘導用案内管21内に挿通される処置用内視鏡23の先端部26の横断面形状が円形であり、一方、挿入部25の湾曲部27及び可撓管部28の横断面形状が上側のみを半円形状にしたものである。挿入部25の湾曲部27及び可撓管部28はその下側半分が切除された形状であり、この切除後の空間部分によって、後述する1本の処置具用案内管24を嵌め込む収納用空間41を形成する。

【0042】上記処置用内視鏡23の先端部26における先端面には、観察手段の観察レンズ29と照明手段の照明レンズ30の他に挿通用チャンネル(処置具挿通管路)42の先端が開口している。この挿通用チャンネル42は挿入部25の全長にわたり形成されるものである。ここで、観察レンズ29は先端部26の先端面における比較的下側部位に位置して配置され、照明レンズ30はその近くの左右に位置して配置されている。さらに挿通用チャンネル42の先端開口は比較的上側に位置する部位に配置されている。つまり、挿通用チャンネル42の先端開口は観察レンズ29及び収納用空間41よりも上側に位置して配置されている。

【0043】上記処置具用案内管24は全長にわたりその断面形状が半円扇形の断面形状を有した可撓性のある長尺な管状部材によって形成されており、上記処置用内視鏡23の収納用空間41内に適合して嵌め込まれる形状に構成されている。つまり収納用空間41内に処置具用案内管24を抱き込むように嵌め込んで収納したときの総和の横断面形状が略円形になり、両器具の直線部が接する状態で密に配置される関係で両器具が組み合わさ

れ、上記器具誘導用案内管21内に纏めて一緒に挿通可能なように構成されている。

【0044】しかし、処置具用案内管24の横断面形状は半円形であり、この半円形と、処置用内視鏡23の湾曲部27及び可撓管部28の部分の横断面形状の半円形とを合わせた横断面形状が略円形となり、この総和の円形の外径が上記器具誘導用案内管21の内径よりも小さくなるように、各器具は円弧と直線を組み合わせた横断面形状にて構成されている。

【0045】また、処置具用案内管24は前述した第1実施形態と同様に湾曲機能を有する湾曲部31を有しており、その湾曲部31は手元側での操作により強制的に湾曲させられるようになっている。

【0046】(作用) 本実施形態では1本の処置用内視鏡23の収納用空間41に処置具用案内管24が抱き込むようにした形に組み合わせられ、そして、両器具を器具誘導用案内管21内にまとめて挿入するようにしたものである。

【0047】そこで、第1実施形態で述べたと同様に器具誘導用案内管21を体腔内に導入し、器具誘導用案内管21の先端から処置用内視鏡23及び処置具用案内管24の先端部分を突き出し、さらに処置具用案内管24を下側に湾曲して収納用空間41から離脱させて前方へ進める。

【0048】そして、図2で示すように、処置用内視鏡23の挿通用チャンネル42を通じて把持鉗子32を挿通し、処置具用案内管24には鉄鉗子44を挿通して、病変部39を切除する手技を行う。

【0049】また、処置用内視鏡23の挿通用チャンネル42を通じて把持鉗子32を挿通すると共に、第1実施形態で述べた如く、処置具用案内管24に高周波スネア切開具36を挿通して病変部39の高周波切除を行うこともできる。

【0050】(効果) 本実施形態では処置具用案内管24に処置用内視鏡23と処置具用案内管24を後入れする際、それらの先端部が分かれていないので、複数の器具を挿入するにも拘らず、複数の器具がバラバラになり難く、また、引っ掛けたりや挿入抵抗が少なく、複数の器具を器具誘導用案内管21に挿入しやすい。

【0051】処置具用案内管24としては1本のみ用いるので、その占有空間を大きくすることが可能であり、案内管24の内部空間を第1実施形態のものに比べ大きくすることができる。従って、大きい処置具を挿入して使用することができる。

【0052】また、第1実施形態の場合では主に横方向から処置操作を行うようにしたが、本実施形態では縦方向から処置操作ができるので、腫瘍のできた粘膜を把持鉗子32で引っ張り上げて大きく隆起させてから鉄鉗子44で剥離するなどの手技が容易である。

【0053】さらに、処置用内視鏡23の先端部26を

大きくすることができるため、大きな観察光学系及び照明光学系を組み込むことができ、それらの能力を高めることが容易である。

【0054】[第3実施形態] 図3を参照して本発明の第3実施形態を説明する。

【0055】(構成) 本実施形態では上記器具誘導用案内管21内に挿通される処置用内視鏡23の挿入部25が先端部26を含めてその横断面形状が上側のみの半円形である。また、湾曲機能付きの処置具用案内管24の横断面形状は前述した第2実施形態と同様に下側のみの半円形であり、その挿入部25と処置具用案内管24の直線部分が互いに接合されたときの総和の横断面形状が略円形になり、両器具の平面部分が接合した組み合わせの状態で、上記処置具用案内管24内に挿通可能なように構成されている。

【0056】上記処置用内視鏡23の挿入部25における先端部26の下側面部(処置具用案内管24との境界面側に向く部分)には観察手段の観察レンズ29と照明手段の照明レンズ30が前後に並べて配設しており、この処置用内視鏡23は側方視観察と側方視照明を行う側視型形式のものとなっている。

【0057】上記観察レンズ29の内側には図示しない固体撮像素子などの撮像手段が設けられ、また照明レンズ30の内側には図示しないライトガイドファイバの先端が配置されている。上記ライトガイドファイバはその手元側遠位端から同じく図示しない光源装置からの光を受け、その光を側方へ向けた照明レンズ30に伝達して体腔内を照明するようになっている。

【0058】また、処置用内視鏡23の挿入部25における先端部26の下面部には挿通用チャンネル42の出口42aが形成され、この出口42aには処置具を曲げる処置具起上台43が具備されている。処置具起上台43は先端部26に所定の角度の範囲内で回転自在に枢着されている。そして、通常、処置具起上台43は倒伏して出口42a内に収納された姿勢にあるが、処置用内視鏡23の図示しない操作部に設けた起上操作レバーを回転させると、これに連動する起上ワイヤー(図示せず)の牽引により起上するようになっている。その他の構成については、前述した第1実施形態または第2実施形態のものと同様の構成である。

【0059】(作用) これまでの例と同様に、予め、図示しない内視鏡を用いて、病変部39の近くに先端がくるように器具誘導用案内管21を体腔内に挿入して留置する。処置用内視鏡23の挿入部25と処置具用案内管24を抱き合わせると共に、処置用内視鏡23の観察レンズ29よりも先端が後方に位置するように処置具用器具誘導用案内管21をずらす。この状態のまま、処置用内視鏡23により器具誘導用案内管21の内壁を観察しながら処置用内視鏡23の挿入部25と処置具用案内管24の両方と一緒に器具誘導用案内管21内に挿入して

いく。

【0060】処置用内視鏡23の挿入部25の先端部26が器具誘導用案内管21の先端から突き出し、処置用内視鏡23により体腔壁が見え、その先端部26が器具誘導用案内管21の先端から突き出したことを確認したら、処置用内視鏡23の湾曲部27を湾曲させつつ、その挿入部25を適宜回転させて、病変部39を真上から観察するようにする。このとき、処置具用案内管24も挿入部25と一緒に回転させる。

【0061】次に、処置具用案内管24に高周波スネア切開具36を挿通し、その処置具用案内管24を湾曲させたり進退させたりし、さらには高周波スネア切開具36を適宜進退させながら、病変部39に高周波スネア切開具36のループワイヤ36aを掛ける。続いて、処置具、例えば把持鉗子32を処置用内視鏡23の挿通用チャンネル42に挿通し、その出口42aから体腔内に先端部を突き出す。さらに起上台43を適宜起上して把持鉗子32のシース先端部分を側方へ曲げるよう押しながら把持鉗子32により、病変部39を掴み、病変部39を引っ張り上げる。この後、高周波スネア切開具36のループワイヤ36aを引き締めて、通電し、病変部39を切除する。

【0062】(効果) ここでの処置用内視鏡23は側方を観察する側視型のものを用いているため、病変部39を真上から観察することが可能であり、高周波スネア切開具36のループワイヤ36aが病変部39の周囲に来ることが容易に分かる。また、病変部39を掴む操作も、病変部39を引っ張り上げる操作も、ループワイヤ36aを締める操作のいずれも観察しながら確実に行うことができ、処置の確実性を向上することが出来る。さらに2本の処置具を独立して操作することができるので、失敗によるやり直しが少ない。

【0063】尚、本実施形態では処置用内視鏡23の観察方向がその内視鏡23の長手方向の軸に対して90度の角度にしたが、病変部39の部位によっては後方斜視にしたり、前方斜視にしても良い。組み合わせて使用する処置具の種類も、クリップと電気メス、T字形状のタグで引き上げてレーザープローブでカットするとか色々のものが考えられる。また、上述した第1実施形態の場合のように、2本の処置具用案内管24を使用するようにしても良い。

【0064】[第4実施形態] 図4を参照して本発明の第4実施形態を説明する。

(構成) 本実施形態では処置具用案内管24の代わりに先端が斜めにカットされた透明で柔軟なウレタン樹脂製のキャップ50を先端に設けた湾曲機能付きの吸引チューブ51を用いるようにした処置具ユニットの例である。また、処置用内視鏡23はその先端部26の所の横断面の外形状が略円形な外形であり、湾曲部27と可撓管部の所には横断面の外形状が三日月形状の収納用凹溝

部52を形成した。上記吸引チューブ51はその収納用凹溝部52内に嵌め込まれて収納されるようになっていく。

【0065】処置用内視鏡23の先端部26においての上記収納用凹溝部52を配置する側に位置する下面部には観察手段の観察レンズ29と照明手段の照明レンズ30が前後方向に並べて配設され、これにより前述した第3実施形態の場合と同様、側方視観察と側方視照明を行う側視型の内視鏡を構成している。

【0066】先端部26の下面部には、挿通用チャンネル42の出口42aが形成されており、この出口42aには前述した第3実施形態の場合と同様、処置具の突き出し方向を調節する処置具起上台43が備えられている。上記先端部26にはさらに洗浄水や空気を吹き付けて観察レンズ29の外表面を洗浄する洗浄ノズル53が配設されている。また、この実施形態での照明手段の光源は先端部26に内蔵される白色LEDである。

【0067】(作用)まず、前述したように、図示しない内視鏡挿入部を用いて、病変部39の近くに先端がくるように器具誘導用案内管21を体腔内に挿入して留置する。次に、処置用内視鏡23の収納用凹溝部52内に吸引チューブ51を嵌め込むことにより両者を抱き合させて両方の器具と一緒に纏め、このように組み合わされた処置用内視鏡23と吸引チューブ51の両者を器具誘導用案内管21内に挿通し、その先端部分が体腔内の病変部39の近傍に位置する場所まで導く。

【0068】そして、病変部39の近傍に導いたところで、処置用内視鏡23の湾曲部27を吸引チューブ51から離れる向きに湾曲し、その処置用内視鏡23から吸引チューブ51を分離する。例えば静脈瘤のような病変部39の場合、病変部39を視野内に捉えたら病変部39の周囲に挿通用チャンネル42を通じて挿入したループ留置具54のループワイヤ55を押し付けて位置決めさせる。この後、病変部39に吸引キャップ50の先端部分を被せる。

【0069】そして、吸引ポンプのスイッチをオンとし、吸引キャップ50内に病変部39を吸い込む。吸引キャップ50内に病変部39が十分に吸い込まれたところで、その病変部39の周囲に配置した上記ループワイヤ55を絞り込み、その後、ループワイヤ55の部分を切り離し、病変部39を拘束した状態で、ループワイヤ55を放出してそのまま留置する。

【0070】(効果)本実施形態によれば、把持鉗子やクリップで病変部39を引き上げる場合に比べて、大きな病変部39を十分に引き上げることができる。また、吸引キャップ50内に病変部39を吸引する力を十分に強くすることができるので、病変部39の引き締め時、または病変部39を引き上げる時、処置具の方が病変部39側に引き込まれてしまう不具合がない。加えて、吸引力をコントロールすることにより、広範な病変部39

や深い病変部39であっても的確な処置が可能になる。

【0071】本実施形態では処置用内視鏡23の湾曲部27の部分から手元側にわたりその横断面形状が三日月形状の収納用凹溝部52を形成しているが、湾曲部27も先端部26と同様、横断面形状が円形なものとしてその湾曲部27の後端に続く可撓管部28の部分から収納用凹溝部52を形成するようにしても良い。

【0072】また、上記吸引チューブ51の横断面形状も円形のものに限るものではなく、半円、扇状、三日月状などの形状として、相手の処置用内視鏡23の横断面形状と組み合わせたときに略円形になるようにしてもかまわない。

【0073】さらには処置用内視鏡23の先端部26の横断面形状も円形のものに限るものではなく、前述した図3で示した第3実施形態のもののように半円形状にしたものでも良い。

【0074】また、ループ留置具54の代わりに前述したような高周波スネア切開具36を用いて病変部39を焼灼して切除するようにしても良い。粘膜下の腫瘍や陥凹型の病変部について処置する場合には、予め、処置用内視鏡23を用いて注射器を挿入し、病変部39の下に生理食塩水を注入し、筋層から病変部39を剥離し、病変部39を隆起させておくようにしても良い。また、病変部39が判別し難い場合は目印をつけておいて病変部39を処置するようにしても良い。

【0075】[第5実施形態]図5を参照して本発明の第5実施形態を説明する。

【0076】(構成)本実施形態では、体腔内の病変部39を引き上げる手段として、上述した第4実施形態の吸引チューブ51の代わりに2番目の処置用内視鏡60を用い、これを一つの処置具ユニットとして上述した第4実施形態の処置用内視鏡23に組み合わせるようにしたものである。

【0077】この2番目の処置用内視鏡60は先端部61と湾曲部62を有する挿入部63を備えてなり、その先端部61の先端面には観察手段の観察レンズ64と照明手段の照明レンズ65とを設け、その観察レンズ64の後ろの部分には観察手段としてイメージガイドファイバを設け、照明レンズ65の後ろの部分には照明手段としてライトガイドファイバを設ける。上記先端部61の先端面には挿通用チャンネル66の先端を開口し、これにより処置具を突き出すようになっている。つまり、この2番目の処置用内視鏡60も第2実施形態での処置用内視鏡23と同様の直視型内視鏡を構成している。

【0078】(作用)処置用内視鏡23で真上から体腔内の病変部39を観察しつつ、2番目の処置用内視鏡60で、病変部39を横方向から観察しつつ、両方の処置用内視鏡23、60を用いて各種の処置を行うことができる。

【0079】例えば、処置用内視鏡23の挿通用チャン

ネル42を通じて導入したループ留置具54のループワイヤ55を病変部39のまわりにおき、2番目の処置用内視鏡60の挿通用チャンネル66を通じて挿入したT字形のタグ67を病変部39の壁に貫通させてその病変部39を引き上げ、上記ループ留置具54のループワイヤ55にて病変部39を結紮し、この後、ループワイヤ55を放出してループ留置具54を留置する。

【0080】(効果) 以上の如く、2つの処置用内視鏡23、60により病変部39を観察しつつ引き上げ具としての第2の処置用内視鏡60を使用するので処置がし易い。

【0081】もちろん、処置方法は反対の組み合わせ、つまり、処置用内視鏡23側で引き上げ、2番目の処置用内視鏡60側で結紮して留置するようにしても良い。また、処置部位によっては処置用内視鏡23の観察方向は側方でなくて直視でも良いし、また、2番目の処置用内視鏡60には照明手段を設けなくても内視鏡23の照明手段でカバーできる症例もある。2番目の処置用内視鏡60は観察手段に固体撮像素子を用いた電子内視鏡としても良い。これらの横断面形状も上記の形状に限るものではない。

【0082】【第6実施形態】図6を参照して本発明の第6実施形態を説明する。

【0083】(構成) 本実施形態では処置用内視鏡23の挿入部25の横断面形状が略半円形であり、その先端部26における先端面が45度の斜めにカットされており、この処置用内視鏡23はその観察方向が前方に45度の斜めになっている斜視型のものとなっている。先端部26の斜めの先端面には2つの照明レンズ30と、1つの観察レンズ29と、1つの処置具挿通用チャンネル(処置具挿通管路)42の出口が設けられている。照明レンズ30にはライトガイドファイバ束からなる照明光伝達手段がそれぞれ接続されている。また、挿通用チャンネル42の先端の出口の内部には処置具起上台43が配設されている。

【0084】また、本実施形態では上記処置用内視鏡23と対を成す湾曲機能付きの自動縫合器70が設けられ、この自動縫合器70の挿入部71は上記処置用内視鏡23の挿入部25の略半円形の横断面形状と対を成す略半円形の横断面形状を持ち、上記器具誘導用案内管21内にまとめて挿入されるようになっている。つまり、処置用内視鏡23の挿入部25と自動縫合器70の挿入部71を組み合わせたときの総和の横断面形状は略円形になり、それらの接合する内側の直線部が近接して比較的密に組み合わせられて上記器具誘導用案内管21内に進退自在に配置され得るようになっている。しかして、処置用内視鏡23の挿入部25と自動縫合器70の挿入部71を組み合わせたときの総和の円形な横断面形状の外径は上記器具誘導用案内管21の内孔の内径よりも僅かに小さく形成されている。

【0085】上記自動縫合器70の挿入部71における先端部には開閉自在な一对のジョー72を有した縫合部73が設けられている。一对のジョー72はその内側に縫合用ステープル74を装着し、一对のジョー72を閉じて組織部分を挟み込むことにより組織部分をステープル74で縫合するようになっている。また、一对のジョー72は閉じておくことにより処置用内視鏡23の挿入部25と一緒に上記器具誘導用案内管21内に進退自在に挿入配置することができる。

【0086】(作用) 処置用内視鏡23により斜め上から体腔内を観察するとき、その視野内に病変部39を捉えたら挿通用チャンネル42を通じて把持鉗子32を挿入し、この把持鉗子32で病変部39を掴む。この際、必要に応じて処置具起上台43を上げ下げ回動して、把持鉗子32による把持位置を調整する。把持鉗子32で病変部39を掴んだらその把持鉗子32を処置用内視鏡23の先端部26近くまで引き込み、その状態で処置用内視鏡23の湾曲部27を湾曲させることにより病変部39を持ち上げる。

【0087】この際、自動縫合器71の縫合部73の一对のジョー72を開いてその間の位置に病変部39の根元部分を位置させる。この後、一对のジョー72の間で病変部39を挟み込み、ステープル74により縫合する。

【0088】(効果) 本実施形態では、斜め上から病変部39の全体像を捉えることができるので、病変部39の根元部分を縫合する処置の操作がしやすい。また、前述したような処置具用案内管24を介さず、直接に器具誘導用案内管21内に自動縫合器70を挿入するようにしたので、比較的大型の自動縫合器70を使用することができる。さらに、自動縫合器70は異形な大型の横断面形状に形成した湾曲機能付きの処置具であるのが普通であるが、器具誘導用案内管21内に直接挿入するようにしたので、余裕をもって使用することができる。その結果、処置範囲を拡大することができる。

【0089】尚、処置用内視鏡23の挿入部25における先端面が45度の斜めにカットしたが、そのカットする角度は45度に限るものではない。また、自動縫合器70の代わりに超音波振動切開具、高周波切開ハサミ鉗子、前述した高周波ワイヤ切開具または後述する図10に示すような高周波切開具などを用いれば、より広範囲な粘膜の切除が容易である。さらに、縫合器の縫合方向は軸に平行な上記の例に限るものではなく、直角な方向であっても良い。

【0090】【第7実施形態】図7を参照して本発明の第7実施形態を説明する。

【0091】(構成) 本実施形態の処置用内視鏡23はその先端部26のみが比較的大きな円形の横断面形状を有するものである。先端部26の側方部位には観察光学系の観察レンズ29と照明光学系の照明レンズ30

が設けられており、この観察レンズ29と照明レンズ30とは円筒形のアクリル樹脂製の透明カバー75によって覆われている。

【0092】処置用内視鏡23の先端部26には湾曲部27及び可撓管部28を有してなる細管76が接続されている。この細管76は先端部26の径よりも小さい径を有し、その先端は先端部26の中心軸から外れ、先端部26の上周面に一杯の上側にずれて位置し、先端部26の後端に接続されている。

【0093】また、処置用内視鏡23の先端部26の後端から細管76を避けた領域には上記同様に湾曲機能を有する処置具用案内管80が配置されるようになっている。処置具用案内管80の上側周面部分には上記細管76を嵌め込み配置するための凹溝部81を処置具用案内管80の長手方向に沿って長く形成してなり、その凹溝部81を含む部分の横断面形状の外形状は、いわゆるそら豆みたいな形になっている。

【0094】上記凹溝部81内に細管76を配置するようにして処置用内視鏡23と処置具用案内管80を密に組み合わせたときの総和の横断面形状は略円形になり、両者は上記処置用案内管80内に進退自在に配置される。上記処置具用案内管80内には同じくそら豆形状の横断面形状を有する2本の処置具挿通用チャンネル82が貫通して設けられている。

【0095】(作用) 処置用内視鏡23の先端部26の後端から細管76を避けた領域に上記処置具用案内管80を抱き合わせるようにして両者を組み合わせる。そして、両者を器具誘導用案内管21内に挿入して体腔内で導き入れる。両者の先端が器具誘導用案内管21の先端から体腔内に突き出したところで、処置具用案内管80の湾曲部83に湾曲をかけて処置用内視鏡23から分離する。

【0096】そして、図7で示すように処置用内視鏡23によって病変部39を真上から観察しながら処置具用案内管80の2本の処置具挿通用チャンネル82を通じてそれぞれ挿入した対の処置具で病変部39を処置する。例えば、把持鉗子32で病変部39を摘まんで引っ張り上げながら高周波スネア切開具36によって病変部39を切除する。

【0097】(効果) 処置用内視鏡23の先端部26の横断面形状が太い径の円形なものであり、湾曲部27及び可撓管部28を有する細管76はそれよりも細い径の円形のものであるため、先端部26に観察光学系と照明光学系の主要部を組み込み、細管76には他の部材を組み込むことにより、特に細管76の構造を簡単にすることができる。また、細管76の部分の横断面形状が円形なので、その細管76を湾曲する際に偏るなどの乱れた動きを招かない。

【0098】尚、本実施形態での処置具用案内管80は一本のみを用いる場合として説明したが、2本の処置具

用案内管80を用いて処置用内視鏡23の先端部26の後ろに配置するようにしても良い。この場合、各処置具用案内管80には1本の処置具挿通用チャンネル82を形成するようにしても良い。また、使用する各処置具の組み合わせもこの例に限るものではなく、例えば、上述したような各種の組み合わせが考えられる。

【0099】【第8実施形態】図8を参照して本発明の第8実施形態を説明する。

【0100】(構成) 本実施形態では前述した第1実施形態のものと類似するものであるが、その処置機能のある器具が、湾曲機能付きの把持鉗子85と、湾曲機能付きの処置具用案内管86に挿通される処置具、例えば高周波処置具87としたものである。上記把持鉗子85のシース88の部分における横断面形状は中心近くの角が鋭角な扇型であり、上記処置具用案内管86の横断面形状は中心近くの角の角度が鈍角な扇型であり、以上の2つの角度を合わせると180度になり、両者を合わせた総和の横断面形状が略半円になるようになっている。

【0101】一方、処置用内視鏡23の横断面形状は略半円であり、この半円と上記処置機能側の半円の両者を合わせると、略円形になり、その円形の外径は上記処置機能部材を挿通する器具誘導用案内管21の内径よりも僅かに小さくなるように形成してある。つまり、把持鉗子85と、処置具用案内管86と、処置用内視鏡23の3者を接合して纏めると、器具誘導用案内管21の内孔内に挿通できるように組立てられるように構成されている。

【0102】(作用) 第1実施形態とは異なり、処置操作はシース88の横断面形状が異形の処置具と、処置具用案内管86に挿通した処置具の組み合わせにより処置する。

【0103】(効果) 本実施形態によれば、処置具用案内管を利用して処置具を用いる場合に比べ、大きい処置具を用いて処置することができる。従って、大きいポリープ等の処置を容易に行うことが可能になる。

【0104】尚、処置機能を有する側の各部材の抱き合わせたときの総和の横断面形状、及びこれらを挿通する器具誘導用案内管21の横断面形状を真円ではなく、梢円などの非円形(異形)に形成しても良い。

【0105】【第9実施形態】図9を参照して本発明の第9実施形態を説明する。

【0106】(構成) 本実施形態がこれまでの各実施形態のものと異なる点は器具誘導用案内管21の壁部の一部に簡易式の照明手段を組み込むようにしたところにある。この照明手段の照明レンズ90はその器具誘導用案内管21の先端面に設けられている。また、照明手段のライトガイドファイバーと小型のハロゲンランプと電池とからなるバッテリーは器具誘導用案内管21の壁部内に内蔵されている。また、処置用内視鏡23と湾曲機能付きの処置具用案内管24の横断面形状はそれぞれ半円

である。

【0107】(作用・効果)このように構成したので、内視鏡の挿入部に沿って体腔内の病変部39近くまで先端を導入された器具誘導用案内管21の照明手段を点灯して病変部39を照明することができる。また、処置用内視鏡23と湾曲機能付きの処置具用案内管24を抱き合させて器具誘導用案内管21内に挿入し、その処置用内視鏡23に設けられた挿通用チャンネル42を通して挿入した把持鉗子32で、病変部39を含む体腔壁を引っ張り上げて自動縫合器70で縫合する。また、処置用内視鏡23と処置具用案内管24を通じて種々の処置具を挿入し、種々の処置を行うことができる。

【0108】また、器具誘導用案内管21に照明手段を組み込んだので、処置用内視鏡23の照明手段のライトガイドの本数を削減することが可能になり、処置用内視鏡23の外径を細くすることができる、これにより、間接的且つ相対的に同時に用いる処置具用案内管24自体を太くすることが可能になり、大型の処置具、自動縫合器や超音波振動熱焼灼カッタとかを用いることができるようになる。

【0109】本実施形態では器具誘導用案内管21の壁の全てにライトガイドを埋め込むとか、白色のLEDを先端に内蔵するとかして照明手段を構成するようにしても良い。この照明手段の照明光量を上げれば、処置用内視鏡23は観察手段だけでもよく、これによって処置用内視鏡23や処置具用案内管24の更なる細径化やその処置具挿通用チャンネルの径を太くすることができる。

【0110】【第10実施形態】図10を参照して本発明の第10実施形態を説明する。

【0111】(構成)本実施形態では器具誘導用案内管21に挿入して使用される処置用内視鏡23の先端部26の形状が、砲弾型形状のものの先端途中から後方部分を斜め45度の角度に切り取って除き、その開いた部分に砲弾型形状の外径より小さい外径を有する円筒状部91を中心を片側に寄せ付けた形に形成したものである。先端部26の最大外径は器具誘導用案内管21の内径より僅かに小さく、上記円筒状部91はその最大外径の外形領域内に入り込むように構成されている。2つの外径の差の部分に形成される三日月状の段差面92には観察手段の観察レンズ29と照明手段の照明レンズ30とが後方斜めに向けて配設されている。

【0112】この段差に対向する窪み位置にはその段差の三日月形状に近い断面形状のシース93を有する湾曲機能付きの高周波レゼクト処置具94が配置されるようになっている。高周波レゼクト処置具94はシース93の先端に円弧状の高周波ワイヤ95を進退自在に設けられている。また、先端部26は合成樹脂などの絶縁材料で作られている。

【0113】(作用) 処置用内視鏡23に高周波レゼクト処置具94を抱き合させてこれらと一緒に上記器具誘

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導用案内管21内に挿入して使用される。例えば、図示しない内視鏡を利用して食道96に器具誘導用案内管21を挿入し、続いて処置用内視鏡23と高周波レゼクト処置具94を抱き合させてこれらと一緒に上記器具誘導用案内管21内に挿入し、体腔内に突き出して病変部39を確認する。病変部39を確認したら処置用内視鏡23で後方を観察しながら食道96と胃97の境界の噴門部98に生じた病変部39(例えばバレット上皮や腫瘍)に対して円弧状の高周波ワイヤ95に通電しながら当てて引き上げることで、病変部39の組織を削ぎ落とす。

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【0114】(効果)もともと、噴門部98の所は狭まっているために観察が難しく、病変部39を見落としがちであった。また、逆流性食道炎やバレット上皮という、噴門部98の内面の粘膜の病気が増えているが、その観察/処置が難かった。従来、内視鏡先端を胃97内に挿入し、内視鏡先端に湾曲を180度以上かけた状態で噴門部98の胃97側から見上げる状態で観察していたが、この方法では胃97側しか見えないし、処置をするにも内視鏡挿入部が邪魔になる。湾曲を180度以上にすると、先端部26がぶらつくため、処置具が狙い通りに病変部39を捉えられないなどの欠点があった。

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【0115】また、食道96側から観察方向が前方の、いわゆる直視型内視鏡で、観察/処置をしようとすると、噴門部98が閉じているので、押し広げながらの観察になる。内壁と先端が密着しているので、俗に言うところの赤玉状態になり、狭い範囲の観察しかできない。噴門部98の近くにおいても、内壁は横からの観察と処置になるので病変部39を確実に捉えることができず、処置がやりにくかった。また、斜視型や側視型の内視鏡では観察は容易になるのであるが、内視鏡の処置具挿通用チャンネルの出口に設けた鉗子起上台を操作して、処置具を観察方向に曲げることになり、処置具の動きは内壁に沿って病変部39を削ぎ取るような動きにはならなかつた。また、処置具挿通用チャンネルを通じて挿入することができる処置具は細く腰がないため、内壁を十分に捉えることは難しかつた。

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【0116】しかし、本実施形態では、観察方向をこれまでにない後方斜視にし、処置用内視鏡23の先端部26と上記器具誘導用案内管21を用いて噴門部98を押し広げることによって、これまで、観察や処置が難かつた噴門部98の胃97側から食道96側を一度に観察と処置ができる。また、処置具と処置用内視鏡23を同時に引きながら徐々に処置することで、病変部39を近くで観察しながら確実に処置することができるようになった。

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【0117】また、処置具と処置用内視鏡23が独立しているので、処置用内視鏡23の先端は固定して、病変部39を定点観察しつつ、処置具を曲げて食道96の内壁に沿うように引き動かすことができる。

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【0118】パレット上皮の場合、治療は全周を削ぎ落すことになるが、内視鏡の処置具挿通用チャンネルを通しての処置具であると、シースが細いので腰が弱く、先端が大きくできないので、処置する面積が少なくなり、全周を処置するには何回も繰り返して、処置をする必要があり、面倒であった。しかし、本実施形態では処置具、特に高周波ワイヤ9-5の部分を長くできるので、全周を処置する回数が少なくできる。

【0119】この他に、同様に狭まっている幽門部の観察／処置も可能である。十二指腸の狭窄部なども考えられる。

【0120】尚、本実施形態の段差面9-2の部分のカットの角度を変えるか、光学系を変えることによって、後方斜視の角度を30度や60度などしても良い。また、器具誘導用案内管2-1の先端を斜めにカットし、短い側を処置操作に用いるようにしても良い。さらに、使用する処置具としては上述したものに他に、アルゴンプラズマレーザーや、ローラーによる高周波焼灼具等であっても良い。

【0121】さらには器具誘導用案内管2-1に挿入する処置用内視鏡は固体撮像素子が大きく、観察能力に優れた内視鏡が適しているので、固体撮像素子を内蔵する先端部分については大きな円形の横断面形状とし、これに比べて湾曲部や挿入部は非円形の小さな横断面形状のものとしても良い。

【0122】また、前述した実施形態では上記器具誘導用案内管の内孔及びこれに入れる器具の組み合わせた全体の横断面形状が略円形であったが、本発明ではそれに限らず、楕円や長円または他の形状のものであっても良い。

【0123】処置用内視鏡と処置ユニットの個別の進退をより円滑にするために、それぞれを滑り性に優れる材料を用いるとか、外表面に滑り性の良いコートをするようにしてもよい。また、処置用内視鏡と処置ユニット器具を挿入する案内管の内面に同様のコートを施しても良い。

#### 【0124】<付記>

1. 体腔内に挿入される器具誘導用案内管と、上記器具誘導用案内管の内孔に進退自在に挿入される少なくとも一つの処置用内視鏡と、上記器具誘導用案内管の内孔に進退自在に挿入される少なくとも一つの処置ユニットとを具備してなり、上記内視鏡と上記処置ユニットのうち少なくとも一つのものの横断面の外形状が上記器具誘導用案内管の内孔の径よりもわずかに小さい径の弧の部分を持ち、上記内視鏡と上記処置ユニットを組み合わせて上記器具誘導用案内管に入れる際にその組み合わせた全体の横断面の外形状が上記器具誘導用案内管の内孔の径よりもわずかに小さい径を有する形状になるように構成したことを特徴とする内視鏡治療装置。

【0125】2. 体腔内に上記器具誘導用案内管を誘導

するための第2の内視鏡を備えた第1項に記載の内視鏡治療装置。

3. 内視鏡と処置具ユニットの少なくとも一方における一部の横断面形状を、一部に円弧を有する非円形の形状にすると共に、この円弧の径を器具誘導用案内管の内孔の半径より僅かに小さくし、かつその円弧の部分を外側になるようにして上記内視鏡と処置具ユニットを組み合わせたときの全体の横断面形状が略円形になることを特徴とする内視鏡治療装置。

10 10 【0126】4. 内視鏡と処置具ユニットの少なくとも一方における一部の横断面形状の非円形の形状は円弧と別の曲線との組み合わせた形であることを特徴とする第3項に記載の内視鏡治療装置。

5. 非円形の形状が、円弧と直線との組み合わせた略扇形状であることを特徴とする第3項に記載の内視鏡治療装置。

【0127】6. 内視鏡と処置具ユニットの断面形状が共に略半円であり、内視鏡と処置具ユニットを組み合わせたときの全体の断面形状が共に略円であることを特徴とする第1項に記載の内視鏡治療装置。

7. 内視鏡と処置具ユニットの断面形状が共に略扇形であることを特徴とする第1項に記載の内視鏡治療装置。

8. 処置具ユニットは湾曲機能を具備してなることを特徴とする第1項に記載の内視鏡治療装置。

【0128】9. 処置具ユニットは湾曲機能を具備してなる処置具用案内管を有するものであることを特徴とする第1項に記載の内視鏡治療装置。

10 10 処置具ユニットが少なくとも2本以上のものからなることを特徴とする第1項に記載の内視鏡治療装置。

30 11. 処置具用案内管の少なくとも一部に湾曲機能を設けたことを特徴とする第1項に記載の内視鏡治療装置。

【0129】12. 少なくとも処置具ユニットの一本が処置具であり、もう一本が処置具挿通案内管であることを特徴とする第1項に記載の内視鏡治療装置。

13. 内視鏡が処置具挿通管路を具備することを特徴とする第1項に記載の内視鏡治療装置。

14. 処置具用案内管は少なくとも一つ以上の処置具挿通管路を有することを特徴とする第1項に記載の内視鏡治療装置。

40 15. 器具誘導用案内管は照明手段を有することを特徴とする第1項に記載の内視鏡治療装置。

16. 器具誘導用案内管の内面、その器具誘導用案内管に挿入する部分の処置具ユニットの外面、器具誘導用案内管に挿通する第2の内視鏡の外面に潤滑処理を施したことを特徴とする第1項に記載の内視鏡治療装置。

17. 器具誘導用案内管の先端と、器具誘導用案内管に挿通される内視鏡の先端が斜めに切断された形状に形成されていることを特徴とする第1項に記載の内視鏡治療装置。

【0131】18. 器具誘導用案内管に挿通される内視

鏡の観察方向が側視であることを特徴とする第1、2項に記載の内視鏡治療装置。

19. 器具誘導用案内管に挿通される内視鏡の観察方向は後方斜視であることを特徴とする第2項に記載の内視鏡治療装置。

20. 器具誘導用案内管に挿通される内視鏡の観察方向は前方斜視であることを特徴とする第2項に記載の内視鏡治療装置。

21. 器具誘導用案内管に挿通される内視鏡は処置具挿通用チャンネルを具备し、その内視鏡の先端部の処置具挿通用チャンネルの先端開口部に処置具の起上手段を有することを特徴とする第2項に記載の内視鏡治療装置。

#### 【0132】

【発明の効果】以上説明したように本発明によれば、体腔内の病変部近くまで導き入れた器具誘導用案内管内に少なくとも一つの内視鏡と少なくとも一つの処置具ユニットを抱き合させて後入れして用いることができるので、従来の場合よりも処置がし易くなる。すなわち、処置用内視鏡と処置具ユニットを独立させて、別個に操作可能とすることで、広範な病変部を遠目から観察しつつ、必要ならば大型の処置具でもって処置することができる。大型の処置具を用いることにより大きな病変を一括して切除できるし、広域な病変部や深く浸潤した病変部の切除を少ない回数で短時間で実施できるなどの利点がある。部分切除でないと、切断面が少ない標本が得られ、切除標本の病理検査がやり易い。その上に、出血が少なく、ガンなどの腫瘍の場合、拡散転移を防ぐことができる。

【0133】また、器具誘導用案内管とこれに挿通する処置用内視鏡と各種の処置具ユニットを様々な形態で組み合わせて構成することにより、体腔内で、従来よりも、広範な病変部の処置状況の全体を観察しながら適切な手術を容易かつ迅速に行うことができるようになる。

【0134】さらに、本発明では少なくともどちらかの器具の横断面形状を円形以外のものにして複数の器具を組み合わせるので、双方の器具を極力細くしないように構成することができる。

\*

\* 【0135】また、器具誘導用案内管の端部を病変部近くに保持するようにすれば、これまで、直視の内視鏡では側方からのアプローチしか出来なかった部位についても、例えば、後入れの内視鏡の観察方向を側視にするなどにより、病変部の上からのアプローチができるようになり処置がし易くなる。

#### 【図面の簡単な説明】

【図1】第1実施形態に係る内視鏡治療装置の使用状態を示す斜視図。

10 【図2】第2実施形態に係る内視鏡治療装置の使用状態を示す斜視図。

【図3】第3実施形態に係る内視鏡治療装置の使用状態を示す斜視図。

【図4】第4実施形態に係る内視鏡治療装置の使用状態を示す斜視図。

【図5】第5実施形態に係る内視鏡治療装置の使用状態を示す斜視図。

【図6】第6実施形態に係る内視鏡治療装置の使用状態を示す斜視図。

20 【図7】第7実施形態に係る内視鏡治療装置の使用状態を示す斜視図。

【図8】第8実施形態に係る内視鏡治療装置の使用状態を示す斜視図。

【図9】第9実施形態に係る内視鏡治療装置の使用状態を示す斜視図。

【図10】第10実施形態に係る内視鏡治療装置の使用状態を示す斜視図。

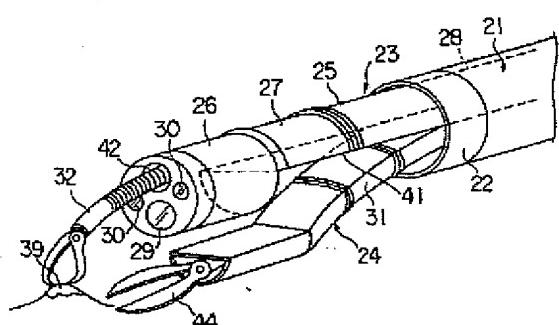
【図11】従来の内視鏡治療装置の使用状態を示す斜視図。

30 【図12】従来の内視鏡治療装置の使用状態を示す斜視図。

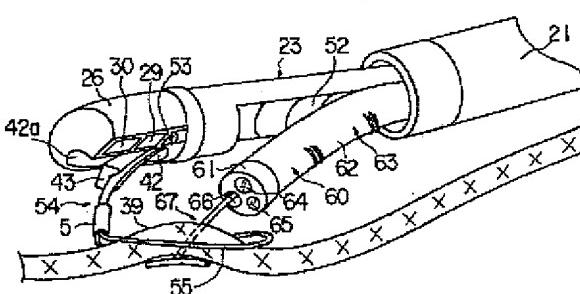
#### 【符号の説明】

21…器具誘導用案内管、23…処置用内視鏡、24…処置具用案内管、39…病変部、32…把持鉗子、36…高周波スネア切開具、35…処置具ユニット、37…処置具ユニット、38…胃、39…病変部。

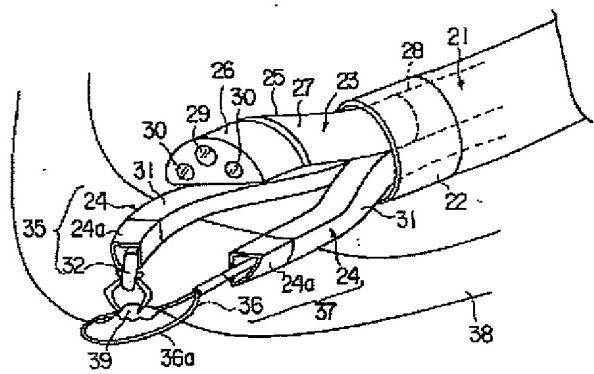
【図2】



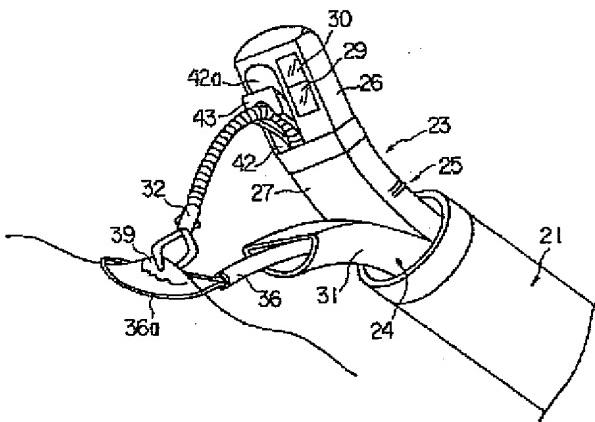
【図5】



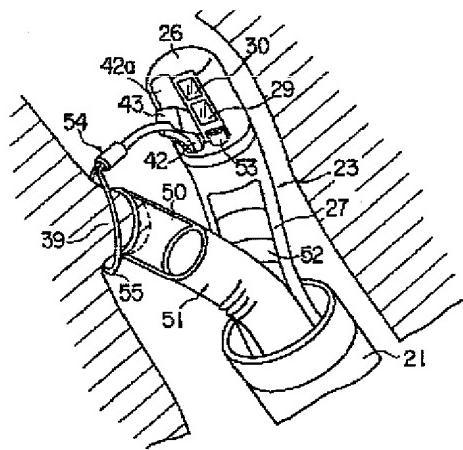
【図1】



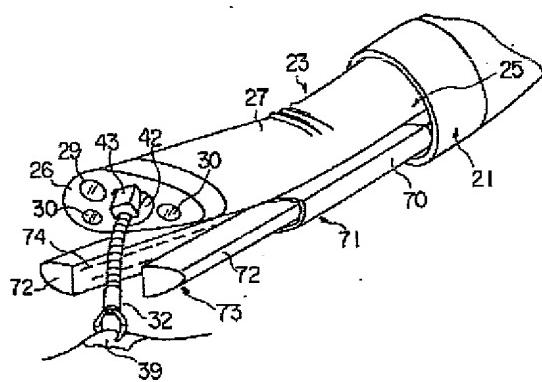
【図3】



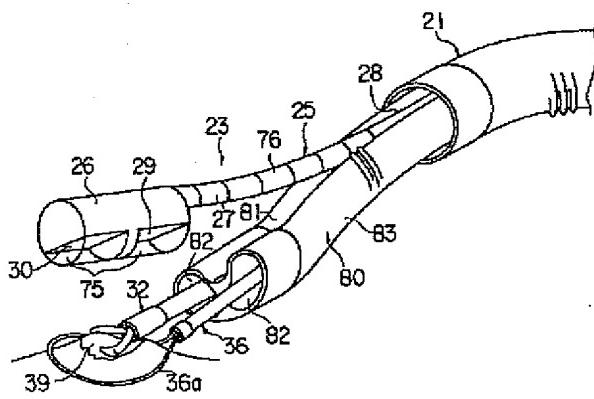
【図4】



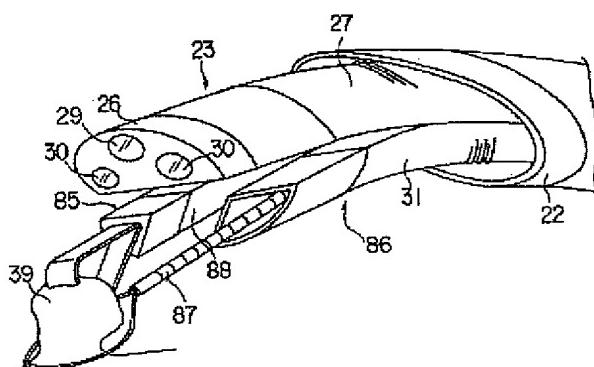
【図6】



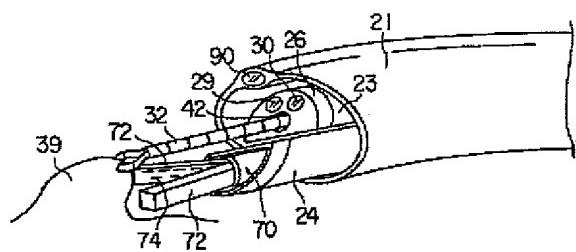
【図7】



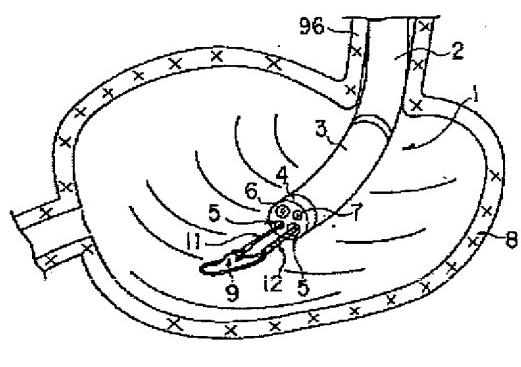
【図8】



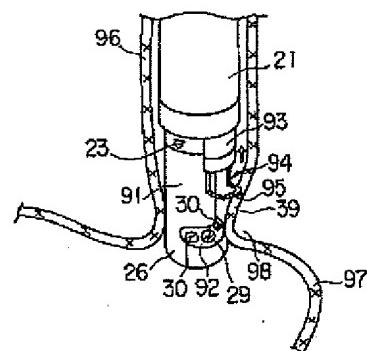
【図9】



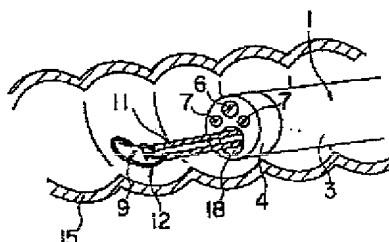
【図11】



【図10】



【図12】



# PATENT ABSTRACTS OF JAPAN

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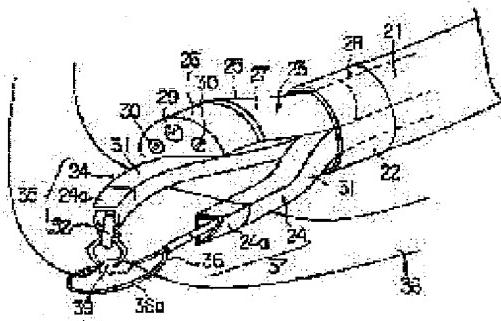
(22)Date of filing : 09.12.1998 (72)Inventor : ARAI KEIICHI

## (54) ENDOSCOPIC TREATMENT INSTRUMENT

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To provide an endoscopic treatment instrument, by which an object capable of being created from the inside of an organ by means of endoscope is extended and also even a wide range of lesion part on a wall in the deep part of a celom or the deeply infiltrated lesion part especially difficult to be treated in a conventional manner is easily treated.

**SOLUTION:** A treatment endoscope 23 and treatment tool units 35 and 37 are inserted to the inner hole of a tool introducing guide tube 21 to be inserted to the celom so as to be freely retrogressing possible, the horizontal cross section shapes of the endoscope 23 and the units are provided with an arc part with a diameter being a little smaller than that of the inner hole of the guide tube and the endoscope 23 and the units are assembled and inserted to the tool introducing guide tube. In this case, the horizontal cross section shape of the whole assembled body is constituted to be the one having the diameter being a little smaller than that of the inner hole of the guide tube. Then the treatment endoscope and the treatment tool units are inserted to the guide tube and used.



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**CLAIMS**

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**[Claim(s)]**

[Claim 1]An endoscope therapeutic device constituting so that it may become shape characterized by comprising the following.

A guide pipe for instrument derivation inserted into the abdominal cavity.

At least one endoscope for treatment inserted in an inner hole of the above-mentioned guide pipe for instrument derivation enabling a free attitude.

At least one treatment implement unit inserted in an inner hole of the above-mentioned guide pipe for instrument derivation enabling a free attitude is provided, Outline shape of a cross section of at least one thing has a portion of an arc of a path slightly smaller than a size of an inner hole of the above-mentioned guide pipe for instrument derivation among the above-mentioned endoscope and the above-mentioned treatment implement unit, When putting into the above-mentioned guide pipe for instrument derivation combining the above-mentioned endoscope and the above-mentioned treatment implement unit, it is a size whose longest size of a cross section of the combined whole is slightly smaller than a path of an inner hole of the above-mentioned guide pipe for instrument derivation.

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[Translation done.]

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**DETAILED DESCRIPTION**

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**[Detailed Description of the Invention]**

[0001]

[Field of the Invention]This invention relates to the endoscope therapeutic device which passes through the lesion part produced in the abdominal cavity, and is treated endoscopically.

[0002]

[Description of the Prior Art]When treating the lesion part produced in the abdominal cavity wall of digestive system organs, such as the stomach and the large intestine, how to pass through first and treat endoscopically can be considered. This inserts an endoscope into the abdominal cavity, inserts the treatment implement for an operation into the abdominal cavity through the channel for treatment implement insertion of the endoscope, and an operation is surgically performed on it out of the abdominal cavity.

[0003]however, if a lesion part is large or the lesion part is carrying out until permeation deeply in the wall in [ this ] passing and performing an endoscopic surgical operation, it is unmanageable in many cases. In such a case, it will shift to the surgical operation with which it deals [ from ] outside the abdominal cavity, and an operation under laparoscopy and a laparotomy will be performed.

[0004]By the way, as drawing 11 shows the insert portion 1 of the endoscope used in the conventional endoscopic surgical operation, it is a thing of composition of having connected the tip part 4 at the tip of the flexible tube part 2 via the curved pipe 3, and the channel 5 for treatment implement insertion is formed covering the overall length in this insert portion 1. The tip of the channel 5 for treatment implement insertion carries out an opening to the apical surface of the tip part 4, and it ranks with this opening and the observation port 6 and the lighting window 7 are allocated.

[0005]And when treating the lesion part 9 produced in the wall of the stomach 8, the grip forceps 11 and the high frequency snare incision implement 12 are introduced through the channel 5 for treatment implement insertion of the insert portion 1 first inserted into the stomach 8, and it deals with the lesion part 9 surgically under an endoscope from the inside of the stomach 8.

[0006]

[Problem(s) to be Solved by the Invention]However, since the insert portion 1 of an endoscope is soft, even if it is going to hold the insert portion 1 in the state where it floated in the air in the swollen stomach 8, the tip part 4 will be unsteady, and it will be in an unstable state. Therefore, the insert portion 1 is made to meet a stomach internal surface, and is pushed, the tip part 4 is brought close to the lesion part 9, carrying out positioning maintenance of the insert portion 1 with stomach walls, and the method of performing treatment is taken. For this reason, since it was in a difficult situation, the portion of the lesion part 9 being seen from the width along a stomach wall surface, and, grasping the overview of the lesion part 9 as a result took the measures of the lesion part 9 difficult. And since an observation system and a treatment system become near, if it is going to observe the whole lesion part 9 and the tip part 4 of an endoscope is separated from the lesion part 9, the tip of a treatment implement will become far, the tip of a treatment implement will be unsteady, and the inconvenience of it becoming impossible to hold

the lesion part 9 etc. will arise. Conversely, if the tip of the insert portion 1 is brought close to the lesion part 9 as a treatment implement does not tend to be unsteady, since a field angle will become narrow, a part of lesion part 9 will not be visible.

[0007]In addition, since it is what is used only by inserting the treatment implement used here in the channel 5 for treatment implement insertion provided in an endoscope, the whole treatment implement needs to be thin and, as a result, the waist of a treatment implement is lost. For this reason, it is dealing with the tumor of the large range, a large polyp, etc. to deficiency in performance.

[0008]Then, although it is thought that what is necessary is just to insert the endoscope for observation and a treatment implement into the abdominal cavity independently, if it does so, the serious inconvenience that treatment operation which a treatment implement separates and considers from the visual field range of an endoscope cannot be performed will occur.

[0009]If a treatment implement and an endoscope are kept from separating using a guide pipe like an exaggerated tube or a sliding tube, As a result of inserting two things into one guide pipe, it will be in the so-called state of a swine nose, and a thick guide pipe with the inside diameter more than the circumscribed circle of the outer diameter of an endoscope and the outer diameter of a treatment implement will be needed. However, since the inside diameter has restriction naturally actually at the abdominal cavity, the outer diameter in the direction of a guide pipe cannot be made thick, but since an endoscope and a treatment implement can use only the thing of a thin outer diameter, the inconvenience that observation capability and treatment capability will fall occurs. It becomes difficult to deal with the large lesion part 9 which requires a large-scale operation especially, or the lesion part 9 which permeated deeply.

[0010]As drawing 12 mentioned later shows on the other hand, through the one channel 18 for treatment implement insertion Two treatment implements, For example, when the grip forceps 11 and the high frequency snare incision implement 12 are introduced and it is made to project in the abdominal cavity, the interval of two treatment implements projected from the tip part 4 of the endoscope becomes narrow, and it will become very difficult to deal with the lesion part 9 located ahead of the tip part 4 of an endoscope.

[0011]As drawing 11 shows, the two channels 5 for treatment implement insertion are formed in an endoscope, There is no change in the interval of the treatment implement projected from the interval of the two channels 5 provided in the tip part 4 of the endoscope even if it was a case of the form which inserts in two treatment implements individually through the separate channel 5 being narrow from the first becoming narrow intrinsically, It is difficult to deal with the large lesion part 9 which requires a large-scale operation especially, or the lesion part 9 which permeated deeply.

[0012]If a treatment implement tends to be inserted in the channels 5 and 18 for treatment implement insertion of an endoscope and it is going to deal with the lesion part 9, as a result of projecting a treatment implement to the narrow field between the lesion part 9 and the tip part 4 inevitably, the view of the lesion part 9 which the treatment implement tends to observe will be barred. And the illumination light emitted from the two lighting windows 7 hits on the surface of a treatment implement, shines, and makes the lesion part 9 hard to see. Conversely, if it is made to make one illumination light emit from the one lighting window 7, the shadow of a treatment implement will be made and the picture by the side of a shadow will become hard to see.

[0013]Drawing 12 shows the example which deals with the lesion part 9 produced in the wall of the intestinal tract 15, an observation direction is a thing of accepting reality and the endoscope used in this case has the one channel 18 for treatment implement insertion with a large path in that insert portion 1. Even in this case, it is hard to do \*\* and treatment that it is hard to carry out front view of the lesion part 9. In order to insert in two or more treatment implements through the one channel 18 for treatment implement insertion, it is necessary to make the tip part of each treatment implement small and, and a thin thing is required also for the sheath portion of the back part. For this reason, generally the waist becomes weak and it comes to be hard to deal with the large lesion part 9 which requires a large-scale operation especially, or the lesion part 9 which permeated deeply.

[0014]By Japanese Patent Application No. No. 43875 [ 53 to ], the channel for treatment

implement insertion and a means to make the method of the axial outside of the supervisor for insertion guides deflect the tip part of a flexible optical viewing tube are prepared for the supervisor for insertion guides of an endoscope, and what improved is describing the treatment performance.

[0015]However, in the thing of this Japanese Patent Application No. No. 43875 [ 53 to ], it cannot let the large-sized treatment implement near the outer diameter of the insert portion of an endoscope pass. The portion of the handle of the treatment implement which passes the forceps insertion channel of an endoscope was thin and soft, and insufficient for being unable to tell the big power of taking a measure at a tip, but raising treatment performance more.

[0016]A taxiing way is attached to the outer wall of an endoscope at JP,51-149985,U, an outer cylinder tube is inserted in the inside of the body through that taxiing way, and what inserted in the suture instrument in this outer cylinder tube is proposed. However, since the endoscope and the outer cylinder tube are connected by the taxiing way if it is in the thing of this JP,51-149985,U, an outside becomes a thing of a thick complicated form and the insertion nature of an endoscope is inferior.

[0017]The place which this invention is made paying attention to each above-mentioned situation, and is made into the purpose, The object with which it can deal from the organ inside by an endoscope is expanded, and can avoid the treatment from the organ outside by the operation under laparoscopy or a laparotomy as much as possible, and. It is possible to carry out easily also about former especially the treatment of the lesion part of the large range of the wall in the inner part of [ difficult ] the abdominal cavity, or the lesion part which permeated deeply, and, as a result, it is in reducing the burden and risk of diffusion of a patient's duration of hospitalization and expense, pain, a scar, and a cancer cell, etc.

[0018]

[Means for Solving the Problem and its Function]A guide pipe for instrument derivation with which an endoscope therapeutic device of this invention is inserted into the abdominal cavity, At least one endoscope for treatment inserted in an inner hole of the above-mentioned guide pipe for instrument derivation enabling a free attitude, At least one treatment implement unit inserted in an inner hole of the above-mentioned guide pipe for instrument derivation enabling a free attitude is provided, Outline shape of a cross section of at least one thing has a portion of an arc of a path slightly smaller than a size of an inner hole of the above-mentioned guide pipe for instrument derivation among the above-mentioned endoscope and the above-mentioned treatment implement unit, It constituted so that the longest size of a cross section of the combined whole might become the shape which has a size slightly smaller than a path of an inner hole of the above-mentioned guide pipe for instrument derivation, when putting into the above-mentioned guide pipe for instrument derivation combining the above-mentioned endoscope and the above-mentioned treatment implement unit.

[0019]Then, the above-mentioned guide pipe for instrument derivation is inserted in a periphery of an endoscope inserting part beforehand inserted, for example into the abdominal cavity, when using an endoscope therapeutic device of this invention, after this, that endoscope inserting part is inserted into the abdominal cavity, continuously, that endoscope inserting part is made to meet and a guide pipe for instrument derivation is inserted into the abdominal cavity. Next, he once draws out an endoscope and undergoes an operation by inserting the following endoscopes for treatment and treatment implement units.

[0020]

[Embodiment of the Invention][A 1st embodiment] A 1st embodiment of this invention is described with reference to drawing 1.

[0021](Elements of the Invention) 21 are the guide pipe for instrument derivation formed in the shape of a cylindrical shape among drawing 1, and this guide pipe 21 for instrument derivation is inserted in the periphery of the insert portion of the endoscope which is not illustrated, and is derived in the abdominal cavity by considering the insert portion of that endoscope as a guide. The guide pipe 21 for instrument derivation is formed of the existing flexible long picture tubular member. The hard reinforcement pipe 22 is attached at the tip of the guide pipe 21 for instrument derivation. As for the guide pipe 21 for instrument derivation, internal and external

paths including the reinforcement pipe 22 are equally formed covering the overall length. [0022]The endoscope 23 (it is hereafter called the endoscope for treatment) only for [ of one ] treatment specially made for the purpose of observation of treatment operation and the two guide pipes 24 for treatment implements are independently inserted in the inner hole of the above-mentioned guide pipe 21 for instrument derivation, respectively. Insertion arrangement of the attitude of these three instruments is made free into the guide pipe 21 for instrument derivation together or individually. The lateral cross sectional shape of the total becomes an approximate circle form, and the outline shape (it is also called lateral cross sectional shape) of the cross section of three instruments is constituted so that the straight part of those instruments may be together put by the relation which is crowded and arranged so that it may approach (the case where it contacts is included) and with which it was filled up. and, If small among the three above-mentioned instruments. The outline shape of the cross section of the thing of one \*\*. When putting into the above-mentioned guide pipe 21 for instrument derivation combining the three above-mentioned instruments with the portion of the arc of a path slightly smaller than the size of the inner hole of the above-mentioned guide pipe 21 for instrument derivation, the longest size of the cross section of the combined whole a size slightly smaller than the path of the inner hole of the above-mentioned guide pipe 21 for instrument derivation. It is constituted so that it may become the shape which it has.

[0023]The insert portion 25 of the above-mentioned endoscope 23 for treatment consists of the tip part 26, the bend 27, and the flexible tube part 28, and, similarly the lateral cross sectional shape of this insert portion 25 is formed in semicircular shapes covering that abbreviated overall length. the radius of the arc part in the lateral cross sectional shape of the insert portion 25 is slightly formed small rather than the radius of the inner hole of the above-mentioned guide pipe 21 for instrument derivation — the above-mentioned insert portion 25 — the field of the semicircle of the inner hole of the guide pipe 21 for instrument derivation — abbreviated — it is arranged densely and inserted in order, enabling a free attitude.

[0024]An observing means and an illumination method are incorporated like the common endoscope to the tip part 26 of the endoscope 23 for treatment (not shown [ both ]), and the observation lens 29 and the illumination lens 30 of an illumination method of the observing means are allocated in the apical surface of the tip part 26.

[0025]Each guide pipe 24 for treatment implements is formed covering the overall length of the existing long picture tubular member of the flexibility in which the lateral cross sectional shape is one fourth of the sectors of a circle, and the hard reinforcement pipe 24a is attached at the tip of these guide pipes 24 for treatment implements. As for the guide pipe 24 for treatment implements, the internal and external path is equally formed covering the abbreviated overall length including the reinforcement pipe 24a. The radius of the arc part in the lateral cross sectional shape of each guide pipe 24 for treatment implements is more slightly [ than the radius of the inner hole of the above-mentioned guide pipe 21 for instrument derivation ] small. and — the lateral cross sectional shape of the combined whole becomes approximately semicircular shapes by combining the two guide pipes 24 for treatment implements — the field of the semicircle of the inner hole of the above-mentioned guide pipe 21 for instrument derivation — abbreviated — being arranged densely — and the inside of the above-mentioned guide pipe 21 for instrument derivation — the whole — and it is individually inserted in order, enabling a free attitude.

[0026]As for the one endoscope 23 for treatment and the two guide pipes 24 for treatment implements which are arranged as mentioned above in the inner hole of the above-mentioned guide pipe 21 for instrument derivation, the lateral cross sectional shape of total of the three things becomes an approximate circle form, The straight part of those insides to join approaches, and it is combined comparatively densely, and is arranged in the above-mentioned guide pipe 21 for instrument derivation, enabling a free attitude on the whole and an individual target.

[0027]Each guide pipe 24 for treatment implements is provided with the bend 31 which has the curve function to incurvate each in the 4 of the 2-way of a longitudinal direction, or the direction of four directions directions. When compulsorily incurvated by the operation by the side of a hand, the bend 31 can move the tip end part of the guide pipe 24 for treatment implements

vertically and horizontally, or can change direction of the tip of the guide pipe 24 for treatment implements.

[0028]The bend 31 of the guide pipe 24 for treatment implements may be constituted combining two or more curved portions, in order to obtain various deflections or turning. For example, it is convenient when it is made to perform the curve which curves to the direction which spreads a hand side portion right and left, and turns a tip side portion inside, and dealing with the lesion part 39, as drawing 1 shows.

[0029]A treatment implement required for the grip forceps 32, the therapy of high frequency snare incision implement 36 grade, etc. is individually inserted in each guide pipe 24 for treatment implements. The grip forceps 32 is inserted in the left-hand side guide pipe 24 for treatment implements, the one treatment implement unit (treating apparatus) 35 is constituted, the high frequency snare incision implement 36 is inserted in the right-hand side guide pipe 24 for treatment implements, and another treatment implement unit (treating apparatus) 37 consists of these embodiments.

[0030]Each above-mentioned treatment implement unit shall be included also when the treatment implement of the grip forceps 32 or high frequency snare incision implement 36 grade is independent.

[0031](An operation and an effect) The case where the endoscopic surgical operation which excises the lesion part 39 produced in the wall of the stomach 38 using the endoscope therapeutic device of this 1st embodiment is performed is explained. First, for example, a large diameter does not illustrate comparatively in the stomach 38, an elasticity endoscope is inserted, and it derives until that tip end part becomes near the lesion part 39, sliding the guide pipe 21 for instrument derivation which carried out the exterior to the insert portion of this endoscope beforehand along with the insert portion of that elasticity endoscope. Then, only the above-mentioned endoscope is sampled, maintaining the posture after the guide pipe 21 for instrument derivation inserts.

[0032]Next, as a flat part suits mutually, the one endoscope 23 for treatment and the two guide pipes 24 for treatment implements are bundled cylindrical, and these are inserted in the inner hole of the guide pipe 21 for instrument derivation together. And the tip end part of the endoscope 23 for treatment and the guide pipe 24 for treatment implements is projected from the tip opening of the guide pipe 21 for instrument derivation. Then, the grip forceps 32 is inserted in the right-hand side guide pipe 24 for treatment implements, and the high frequency snare incision implement 36 is inserted in the left-hand side guide pipe 24 for treatment implements.

[0033]Subsequently, as drawing 1 shows, attitude operation of the grip forceps 32 and the high frequency snare incision implement 36 inserted in the right-hand side guide pipe 24 for treatment implements and the left-hand side guide pipe 24 for treatment implements is carried out. Positioning operation at the tip of the grip forceps 32 and the high frequency snare incision implement 36 is performed by using the curve function of each guide pipe 24 for treatment implements, and carrying out curving operation of the bend 31 of the guide pipe 24 suitably.

[0034]Hang the loop part of the snare wire 36a of the high frequency snare incision implement 36 on the lesion part 39 by performing such operation, and. The root portion of the lesion part 39 is narrowed down with the snare wire 36a of the high frequency snare incision implement 36, grasping the lesion part 39 by the grip forceps 32, and making it upheave, high frequency is energized on the snare wire 36a, and the lesion part 39 is excised.

[0035]Under the present circumstances, since it can be operated observing the position of the state of the lesion part 39, the grip forceps 32, and the high frequency snare incision implement 36, and a motion with the endoscope 23 for treatment which became independent of the treatment implement units 35 and 37, treatment can take a measure promptly easily.

[0036]Since the observation function by the endoscope 23 for treatment and a curve function, and the treatment function and curve function by the treatment implement units 35 and 37 are independently required like the above, the tip part 26 of the endoscope 23 for treatment can be located on slant to the lesion part 39. A motion, a position, etc. of the lesion part 39 and the treatment implement units 35 and 37 can be observed, and the overview of treatment operation

can be grasped certainly. And since the position of each instrument is stably held by the guide pipe 21 for instrument derivation, treatment of the lesion part 39 can be performed certainly and promptly.

[0037]Of course, since the position of the treatment implement units 35 and 37 can be chosen freely and is not made to approach superfluously, the observation visual field of the endoscope 23 for treatment is not barred. Since it can avoid that the view which it is going to observe goes into the shadow of the treatment implement units 35 and 37 as much as possible, it is observable by a clear picture.

[0038]Since the curve function is attached also to the guide pipe 24 of the treatment implement units 35 and 37, the distance of two treatment implements can be used fully detaching it. Therefore, operativity is good, and even if it is the large lesion part 39 which serves as a large-scale operation especially, and the lesion part 39 which permeated deeply, it is possible to cope with it easily.

[0039]Since a treatment implement can be moved to a right-and-left transverse direction, a body wall can be developed in a transverse direction and the extended part can be applied also to various treatment of the electrotome cutting it open, for example.

[0040][A 2nd embodiment] A 2nd embodiment of this invention is described with reference to drawing 2.

[0041](Elements of the Invention) In this embodiment, the lateral cross sectional shape of the tip part 26 of the endoscope 23 for treatment inserted in the above-mentioned guide pipe 21 for instrument derivation is circular, and, on the other hand, the lateral cross sectional shape of the bend 27 of the insert portion 25 and the flexible tube part 28 makes only the upper part semicircle shape. The bend 27 and the flexible tube part 28 of the insert portion 25 are the shape from which that bottom half was excised, and form the space 41 for storage in which the one guide pipe 24 for treatment implements later mentioned by the space part after this excision is inserted.

[0042]The tip of the channel 42 for insertion (treatment implement insertion pipeline) other than the observation lens 29 of an observing means and the illumination lens 30 of an illumination method is carrying out the opening to the apical surface in the tip part 26 of the above-mentioned endoscope 23 for treatment. This channel 42 for insertion is formed covering the overall length of the insert portion 25. The observation lens 29 is located in the comparison bottom part in the apical surface of the tip part 26, and is arranged here, and the illumination lens 30 is located in the right and left near it, and is arranged. Furthermore, the tip opening of the channel 42 for insertion is arranged to the part comparatively located in the upper part. That is, the tip opening of the channel 42 for insertion is located above the observation lens 29 and the space 41 for storage, and is arranged.

[0043]The sectional shape is formed covering the overall length of the existing long picture tubular member of flexibility with the sectional shape of the semicircle sector, and the above-mentioned guide pipe 24 for treatment implements is constituted by the shape inserted in by suiting in the space 41 for storage of the above-mentioned endoscope 23 for treatment. That is, the lateral cross sectional shape of total when it inserted in and stores so that the guide pipe 24 for treatment implements may be won in the space 41 for storage becomes an approximate circle form, Both instruments are together put by the relation densely arranged in the state where the straight part of both instruments touches, it collects in the above-mentioned guide pipe 21 for instrument derivation, and it is constituted so that it can insert in together.

[0044]Carry out a deer, and the lateral cross sectional shape of the guide pipe 24 for treatment implements is semicircular shapes, and These semicircular shapes, Each instrument comprises lateral cross sectional shape which combined the circle and the straight line so that the lateral cross sectional shape with which the semicircular shapes of the lateral cross sectional shape of the portions of the bend 27 of the endoscope 23 for treatment and the flexible tube part 28 were doubled may serve as an approximate circle form and the circular outer diameter of this total may become smaller than the inside diameter of the above-mentioned guide pipe 21 for instrument derivation.

[0045]The guide pipe 24 for treatment implements has the bend 31 which has a curve function

like a 1st embodiment mentioned above, and is compulsorily incurvated to the bend 31 by the operation by the side of a hand.

[0046](OPERATION) It is combined with the form which the guide pipe 24 for treatment implements won over to the space 41 for storage of the one endoscope 23 for treatment by this embodiment, and both instruments are packed in the guide pipe 21 for instrument derivation, and it is made to insert.

[0047]Then, the guide pipe 21 for instrument derivation is similarly introduced in the abdominal cavity with a 1st embodiment having described, the tip end part of the endoscope 23 for treatment and the guide pipe 24 for treatment implements is projected from the tip of the guide pipe 21 for instrument derivation, and further, curve to the down side, and the guide pipe 24 for treatment implements is made to secede from the space 41 for storage, and is carried forward to the front.

[0048]And as drawing 2 shows, the grip forceps 32 is inserted in through the channel 42 for insertion of the endoscope 23 for treatment, the scissors forceps 44 are inserted in the guide pipe 24 for treatment implements, and the technique which excises the lesion part 39 is performed.

[0049]The grip forceps 32 is inserted in through the channel 42 for insertion of the endoscope 23 for treatment, and as a 1st embodiment described, the high frequency snare incision implement 36 can be inserted in the guide pipe 24 for treatment implements, and high frequency excision of the lesion part 39 can also be performed.

[0050](EFFECT OF THE INVENTION) In spite of inserting two or more instruments since those tip parts are not divided when the back puts the endoscope 23 for treatment, and the guide pipe 24 for treatment implements into the guide pipe 24 for treatment implements and they are made it in this embodiment, two or more instruments cannot become scattering easily, and there are little connection and insertion resistance and they tend to insert two or more instruments in the guide pipe 21 for instrument derivation.

[0051]Since one is used as the guide pipe 24 for treatment implements, it is possible to enlarge the occupation space and the building envelope of the guide pipe 24 can be enlarged compared with the thing of a 1st embodiment. Therefore, it can be used, being able to insert a large treatment implement.

[0052]In the case of an embodiment [ 1st ], it was mainly made to perform treatment operation from the transverse direction, but since treatment operation can be performed from a lengthwise direction in this embodiment, and the membrane which was able to do a tumor is pulled by the grip forceps 32 and upheaved greatly, the technique of exfoliating with the scissors forceps 44 is easy.

[0053]Since the tip part 26 of the endoscope 23 for treatment can be enlarged, it is easy to be able to incorporate a big observation optical system and an illumination-light study system, and to heighten those capability.

[0054][A 3rd embodiment] A 3rd embodiment of this invention is described with reference to drawing 3.

[0055](Elements of the Invention) In this embodiment, the insert portions 25 of the endoscope 23 for treatment inserted in in the above-mentioned guide pipe 21 for instrument derivation is [ the lateral cross sectional shape including the tip part 26 ] upper semicircular shapes. The lateral cross sectional shape of the guide pipe 24 for treatment implements with a curve function is lower semicircular shapes like a 2nd embodiment mentioned above, The lateral cross sectional shape of total when the straight-line portions of the insert portion 25 and the guide pipe 24 for treatment implements are joined mutually becomes an approximate circle form, and in the state of the combination which the flat part of both instruments joined, it is constituted so that it can insert in in the above-mentioned guide pipe 24 for treatment implements.

[0056]The observation lens 29 of an observing means and the illumination lens 30 of an illumination method arrange in the lower surface part (portion suitable for the interface side with the guide pipe 24 for treatment implements) of the tip part 26 in the insert portion 25 of the above-mentioned endoscope 23 for treatment forward and backward, and allocate in it, This endoscope 23 for treatment has become lateral view observation and the side \*\* type form

which perform lateral view lighting.

[0057]The tip of the light guide fiber which the imaging means of the solid state image pickup device etc. which are not illustrated is provided inside the above-mentioned observation lens 29, and is not illustrated inside the illumination lens 30 is arranged. The above-mentioned light guide fiber receives the light from the light equipment which similarly is not illustrated from the hand side distal end, transmits the light to the illumination lens 30 towards the side, and illuminates the inside of the abdominal cavity.

[0058]The exit 42a of the channel 42 for insertion is formed in the undersurface part of the tip part 26 in the insert portion 25 of the endoscope 23 for treatment, and the treatment implement lift table 43 which bends a treatment implement possesses in this exit 42a. The treatment implement lift table 43 is pivoted by the tip part 26 within the limits of the predetermined angle, enabling free rotation. And although the treatment implement lift table 43 is in the posture which lodged and was stored in the exit 42a, if the \*\* top control lever provided in the final controlling element which the endoscope 23 for treatment does not illustrate is rotated, it will usually carry out on \*\* by towage of the \*\* top wire (not shown) interlocked with this. It is the composition same about other composition as the thing of a 1st embodiment mentioned above or a 2nd embodiment.

[0059](OPERATION) Like an old example, beforehand, using the endoscope which is not illustrated, the guide pipe 21 for instrument derivation is inserted into the abdominal cavity, and is detained so that a tip may come near the lesion part 39. The insert portion 25 and the guide pipe 24 for treatment implements of the endoscope 23 for treatment are assorted, and the guide pipe 21 for treatment implement appliance implement derivation is shifted so that a tip may be back located rather than the observation lens 29 of the endoscope 23 for treatment. Both the insert portion 25 of the endoscope 23 for treatment and the guide pipe 24 for treatment implements are inserted into the guide pipe 21 for instrument derivation together with this state, observing the wall of the guide pipe 21 for instrument derivation with the endoscope 23 for treatment.

[0060]The tip part 26 of the insert portion 25 of the endoscope 23 for treatment projects from the tip of the guide pipe 21 for instrument derivation, A body cavity wall appears with the endoscope 23 for treatment, incurvating the bend 27 of the endoscope 23 for treatment, if it checks that the tip part 26 has projected from the tip of the guide pipe 21 for instrument derivation, the insert portion 25 is rotated suitably and the lesion part 39 is observed from right above. At this time, the guide pipe 24 for treatment implements is also rotated together with the insert portion 25.

[0061]Next, the loop wire 36a of the high frequency snare incision implement 36 is hung on the lesion part 39, inserting the high frequency snare incision implement 36 in the guide pipe 24 for treatment implements, incurvating the treatment implement guide pipe 24, or making it move, and making the high frequency snare incision implement 36 move suitably further. Then, the treatment implement 32, for example, a grip forceps, is inserted in the channel 42 for insertion of the endoscope 23 for treatment, and a tip part is projected in the abdominal cavity from the exit 42a. Pushing so that the lift table 43 may furthermore be suitably carried out on \*\* and the sheath tip end part of the grip forceps 32 may be bent to the side, by the grip forceps 32, the lesion part 39 is held and the lesion part 39 has been pulled. Then, the loop wire 36a of the high frequency snare incision implement 36 is tightened and energized, and the lesion part 39 is excised.

[0062](EFFECT OF THE INVENTION) Since the side \*\* type thing which observes the side is used, the endoscope 23 for treatment here can observe the lesion part 39 from right above, and it turns out easily that the loop wire 36a of the high frequency snare incision implement 36 has been to the circumference of the lesion part 39. Operation of holding the lesion part 39, and operation which has pulled the lesion part 39 can be ensured observing all of operation that fasten the loop wire 36a, and can improve the certainty of treatment. Since two more treatment implements can be operated independently, there is little redo by failure.

[0063]Although the observation direction of the endoscope 23 for treatment used the angle of 90 degrees to the axis of the longitudinal direction of the endoscope 23 in this embodiment,

depending on the part of the lesion part 39, it may be made back strabism, or may be made front strabism. The kind of treatment implement combined and used is also pulled up with the tag of a clip, the electrotome, and the shape of T type, and is omitted with a laser probe, or various things can be considered. It may be made to use the two guide pipes 24 for treatment implements like [ in the case of a 1st embodiment mentioned above ].

[0064][A 4th embodiment] A 4th embodiment of this invention is described with reference to drawing 4.

(Elements of the Invention) In this embodiment, it is an example of the treatment implement unit which used the suction tube 51 with a curve function which formed at the tip the transparent and flexible cap 50 made of urethane resin into which the tip was cut aslant instead of the guide pipe 24 for treatment implements. the endoscope 23 for treatment — the outline shape of the cross section of the place of the tip part 26 — abbreviated — it is a circular outside and the outline shape of the cross section formed the recessed groove section 52 for storage of crescent shape in the place of the bend 27 and a flexible tube part. The above-mentioned suction tube 51 is inserted in in the recessed groove section 52 for storage, and is stored.

[0065]The observation lens 29 of an observing means and the illumination lens 30 of an illumination method are put in order and allocated in the undersurface part located in the side which arranges the above-mentioned recessed groove section 52 for storage in the tip part 26 of the endoscope 23 for treatment by the cross direction, The side \*\* type endoscope which performs lateral view observation and lateral view lighting is constituted like the case of a 3rd embodiment that this mentioned above.

[0066]The exit 42a of the channel 42 for insertion is formed in the undersurface part of the tip part 26, and this exit 42a is equipped with the treatment implement lift table 43 which adjusts the direction of ejection of a treatment implement like the case of a 3rd embodiment mentioned above. The washing nozzle 53 which sprays wash water and air on the above-mentioned tip part 26 further, and washes the outside surface of the observation lens 29 is allocated. The light source of the illumination method in this embodiment is white LED built in the tip part 26.

[0067](OPERATION) First, as mentioned above, the guide pipe 21 for instrument derivation is inserted into the abdominal cavity, and is detained using the endoscope inserting part which is not illustrated, so that a tip may come near the lesion part 39. Next, by inserting in the suction tube 51 in the recessed groove section 52 for storage of the endoscope 23 for treatment, assort both and both instruments are packed together. Both the endoscope 23 for treatment put together in this way and the suction tube 51 are inserted in in the guide pipe 21 for instrument derivation, and it leads to the place in which the tip end part is located near the lesion part 39 in the abdominal cavity.

[0068]And it curves to the direction which separates the bend 27 of the endoscope 23 for treatment from the suction tube 51, and the suction tube 51 is separated from the endoscope 23 for treatment in the place drawn near the lesion part 39. For example, when catching the lesion part 39 in a view, the loop wire 55 of the loop detention implement 54 inserted in the circumference of the lesion part 39 through the channel 42 for insertion is made to force and position in the case of the lesion part 39 like a varix. Then, the tip end part of the suction cap 50 is put on the lesion part 39.

[0069]And the switch of a suction pump is considered as one and the lesion part 39 is absorbed in the suction cap 50. The above-mentioned loop wire 55 arranged around the lesion part 39 is narrowed down, and after that, the portion of the loop wire 55 is separated, and where the lesion part 39 is \*\*\*\*(ed), the loop wire 55 is emitted and it detains in the place where the lesion part 39 was fully absorbed in the suction cap 50 as it is.

[0070](EFFECT OF THE INVENTION) According to this embodiment, compared with the case where the lesion part 39 is pulled up, the big lesion part 39 can fully be pulled up with a grip forceps or a clip. Since power of attracting the lesion part 39 in the suction cap 50 can be strengthened enough, the time of the tightening of the lesion part 39, or when pulling up the lesion part 39, there is no fault by which the direction of a treatment implement will be drawn in the lesion part 39 side. In addition, by controlling a suction force, even if it is the extensive lesion part 39 and the deep lesion part 39, exact treatment is attained.

[0071]Although the lateral cross sectional shape forms the recessed groove section 52 for storage of crescent shape ranging from the portion to the hand side of the bend 27 of the endoscope 23 for treatment in this embodiment, it may be made for the bend 27 as well as the tip part 26 to form the recessed groove section 52 for storage from the portion of the flexible tube part 28 which follows the back end of the bend 27 as what has circular lateral cross sectional shape.

[0072]When the lateral cross sectional shape of the above-mentioned suction tube 51 is not restricted to a circular thing, either and combined with the lateral cross sectional shape of a partner's endoscope 23 for treatment as shape, such as a semicircle, a flabellate form, and falcatum, you may make it become an approximate circle form.

[0073]What was made into semicircle shape like the thing of a 3rd embodiment shown by drawing 3 which does not restrict the lateral cross sectional shape of the tip part 26 of the endoscope 23 for treatment to a circular thing, either, and furthermore mentioned it above may be used.

[0074]The lesion part 39 is cauterized using the high frequency snare incision implement 36 which was mentioned above instead of the loop detention implement 54, and it may be made to excise. When taking a measure about the tumor under membrane, or a recessus type lesion part, beforehand, an injector is inserted using the endoscope 23 for treatment, a physiological saline is poured in under the lesion part 39, the lesion part 39 is exfoliated from the tunica muscularis, and it may be made to upheave the lesion part 39. \*\*\*\* which the lesion part 39 cannot distinguish easily puts the mark, and it may be made to deal with the lesion part 39.

[0075][A 5th embodiment] A 5th embodiment of this invention is described with reference to drawing 5.

[0076](Elements of the Invention) In this embodiment, as a means to pull up the lesion part 39 in the abdominal cavity, The 2nd endoscope 60 for treatment is used instead of the suction tube 51 of a 4th embodiment mentioned above, and it is made to combine with the endoscope 23 for treatment of a 4th embodiment that mentioned this above as one treatment implement unit.

[0077]This 2nd endoscope 60 for treatment is provided with the insert portion 63 which has the tip part 61 and the bend 62, The observation lens 64 of an observing means and the illumination lens 65 of an illumination method are formed in the apical surface of the tip part 61, an image guide fiber is provided in the portion behind the observation lens 64 as an observing means, and a light guide fiber is provided in the portion behind the illumination lens 65 as an illumination method. The opening of the tip of the channel 66 for insertion is carried out to the apical surface of the above-mentioned tip part 61, and this projects a treatment implement. That is, this 2nd endoscope 60 for treatment also constitutes the endoscope 23 for treatment in a 2nd embodiment, and the same direct viewing type endoscope.

[0078](OPERATION) Various kinds of treatment can be performed with the 2nd endoscope 60 for treatment using both endoscopes 23 and 60 for treatment, observing the lesion part 39 from a transverse direction, observing the lesion part 39 in the abdominal cavity from right above with the endoscope 23 for treatment.

[0079]For example, the loop wire 55 of the loop detention implement 54 introduced through the channel 42 for insertion of the endoscope 23 for treatment is set around the lesion part 39, Make the wall of the lesion part 39 penetrate the tag 67 of T type inserted through the channel 66 for insertion of the 2nd endoscope 60 for treatment, and the lesion part 39 is pulled up, The lesion part 39 is ligated by the loop wire 55 of the above-mentioned loop detention implement 54, after this, the loop wire 55 is emitted and the loop detention implement 54 is detained.

[0080](EFFECT OF THE INVENTION) Like the above, since it pulls up observing the lesion part 39 with the two endoscopes 23 and 60 for treatment and the 2nd endoscope 60 for treatment as an ingredient is used, it is easy to take measures.

[0081]Of course, a treating method is pulled up by the opposite combination 23, i.e., endoscope for treatment, side, is ligated by the 2nd endoscope 60 side for treatment, and it may be made to detain it. Depending on a treatment part, the observation direction of the endoscope 23 for treatment may not be the side, but accepting reality may be sufficient as it, and even if it does not provide an illumination method in the 2nd endoscope 60 for treatment, there is also a case which can be covered by the illumination method of the endoscope 23 in it. The 2nd endoscope

60 for treatment is good also as an electronic endoscope which used the solid state image pickup device for the observing means. Such lateral cross sectional shape is not restricted to the above-mentioned shape, either.

[0082][A 6th embodiment] A 6th embodiment of this invention is described with reference to drawing 6.

[0083](Elements of the Invention) In this embodiment, the lateral cross sectional shape of the insert portion 25 of the endoscope 23 for treatment is approximately semicircular shapes, the apical surface in that tip part 26 is cut aslant which is 45 degrees, and this endoscope 23 for treatment has become the strabismus type thing which that observation direction consists of across 45 degrees ahead. The exit of the two illumination lenses 30, the one observation lens 29, and the one channel 42 for treatment implement insertion (treatment implement insertion pipeline) is established in the apical surface across the tip part 26. An illumination-light means of communication which consists of a light guide fiber bunch is connected to the illumination lens 30, respectively. The treatment implement lift table 43 is allocated inside the exit at the tip of the channel 42 for insertion.

[0084]In this embodiment, the above-mentioned endoscope 23 for treatment and the automatic suture instrument 70 with a curve function which accomplishes a pair are formed. The insert portion 71 of this automatic suture instrument 70 has the lateral cross sectional shape of the approximately semicircular shapes of the insert portion 25 of the above-mentioned endoscope 23 for treatment, and the lateral cross sectional shape of the approximately semicircular shapes which accomplish a pair, summarizes them in the above-mentioned guide pipe 21 for instrument derivation, and is inserted. That is, it becomes an approximate circle form, the straight part of those insides to join can approach, and the lateral cross sectional shape of total when the insert portion 25 of the endoscope 23 for treatment and the insert portion 71 of the automatic suture instrument 70 are combined can be combined comparatively densely, and can be arranged now in the above-mentioned guide pipe 21 for instrument derivation, enabling a free attitude. A deer is carried out and the outer diameter of the circular lateral cross sectional shape of total when the insert portion 25 of the endoscope 23 for treatment and the insert portion 71 of the automatic suture instrument 70 are combined is slightly formed small rather than the inside diameter of the inner hole of the above-mentioned guide pipe 21 for instrument derivation.

[0085]The suturing part 73 with the jaw 72 of the couple which can be opened and closed freely is formed in the tip part in the insert portion 71 of the above-mentioned automatic suture instrument 70. The jaw 72 of a couple equips the inside with the staple 74 for a suture, and sutures an organization portion with the staple 74 by closing the jaw 72 of a couple and putting an organization portion. Insertion arrangement of the attitude of the jaw 72 of a couple in the above-mentioned guide pipe 21 for instrument derivation can be made free together to the insert portion 25 of the endoscope 23 for treatment by closing.

[0086](OPERATION) When observing the inside of the abdominal cavity from on slant with the endoscope 23 for treatment, if the lesion part 39 is caught in that view, the grip forceps 32 will be inserted through the channel 42 for insertion, and the lesion part 39 is held by this grip forceps 32. Under the present circumstances, taking-up-and-down rotation of the treatment implement lift table 43 is carried out if needed, and the gripping position by the grip forceps 32 is adjusted. If the lesion part 39 is held by the grip forceps 32, the grip forceps 32 will be drawn to about 26 tip part of the endoscope 23 for treatment, and the lesion part 39 is raised by incurvating the bend 27 of the endoscope 23 for treatment in the state.

[0087]Under the present circumstances, the jaw 72 of the couple of the suturing part 73 of the automatic suture instrument 71 is opened, and the root portion of the lesion part 39 is located in a position in the meantime. Then, the lesion part 39 is put between the jaws 72 of a couple, and it sutures with the staple 74.

[0088](EFFECT OF THE INVENTION) According to this embodiment, since the overview of the lesion part 39 can be caught from on slant, it is easy to carry out operation of treatment of suturing the root portion of the lesion part 39. Since the automatic suture instrument 70 was directly inserted into the guide pipe 21 for instrument derivation without the guide pipe 24 for treatment implements which was mentioned above, the comparatively large-sized automatic

suture instrument 70 can be used. Although it is common that it is the treatment implement with a curve function formed in large-scale anomaly lateral cross sectional shape as for the automatic suture instrument 70, since it was made to insert directly into the guide pipe 21 for instrument derivation, it can be used with a margin. As a result, the treatment range is expandable.

[0089]Although the apical surface in the insert portion 25 of the endoscope 23 for treatment cut aslant which is 45 degrees, the angle to cut is not restricted to 45 degrees. If a high frequency incision instrument as shown in a supersonic vibration incision implement, high frequency incision scissors forceps, the high frequency wire incision implement mentioned above, or drawing 10 mentioned later instead of the automatic suture instrument 70 etc. are used, excision of wide range membrane is easy. The suture direction of a suture instrument may not be restricted to the above-mentioned example parallel to an axis, and may be a right-angled direction.

[0090][A 7th embodiment] A 7th embodiment of this invention is described with reference to drawing 7.

[0091](Elements of the Invention) As for the endoscope 23 for treatment of this embodiment, only the tip part 26 has circular lateral cross sectional shape with a comparatively big path. The observation lens 29 of an observation optical system and the illumination lens 30 of an illumination-light study system are formed in the side part of the tip part 26, and this observation lens 29 and illumination lens 30 are covered with the transparent cover 75 made of the acrylic resin of a cylindrical shape.

[0092]The small tube 76 which has the bend 27 and the flexible tube part 28 is connected to the tip part 26 of the endoscope 23 for treatment. This small tube 76 has a path smaller than the path of the tip part 26, and that tip separates from it from the medial axis of the tip part 26, it is shifted and located in an upper peripheral surfaceful of the upper part of the tip part 26, and is connected to the back end of the tip part 26.

[0093]In the field which avoided the small tube 76 from the back end of the tip part 26 of the endoscope 23 for treatment, the guide pipe 80 for treatment implements which has a curve function like the above is arranged. Forming the recessed groove section 81 for inserting the above-mentioned small tube 76 in the upper part peripheral surface portion of the guide pipe 80 for treatment implements, and arranging for a long time along with the longitudinal direction of the guide pipe 80 for treatment implements, the outline shape of the lateral cross sectional shape of the portion containing the recessed groove section 81 has what is called a form like a broad bean.

[0094]The lateral cross sectional shape of total as the small tube 76 was arranged in the above-mentioned recessed groove section 81, when the endoscope 23 for treatment and the guide pipe 80 for treatment implements are combined densely becomes an approximate circle form, and both are stationed, enabling a free attitude in the above-mentioned guide pipe 80 for treatment. In the above-mentioned guide pipe 80 for treatment implements, the two channels 82 for treatment implement insertion which similarly have broad bean-shaped lateral cross sectional shape are penetrated and formed.

[0095](OPERATION) Both are combined with it as the above-mentioned guide pipe 80 for treatment implements is assort to the field which avoided the small tube 76 from the back end of the tip part 26 of the endoscope 23 for treatment. And both are inserted into the guide pipe 21 for instrument derivation, and are led in the abdominal cavity. In the place which both tip projected in the abdominal cavity from the tip of the guide pipe 21 for instrument derivation, it dissociates from the endoscope 23 for treatment, applying a curve to the bend 83 of the guide pipe 80 for treatment implements.

[0096]And it deals with the lesion part 39 with a pair of treatment implement inserted through the two channels 82 for treatment implement insertion of the guide pipe 80 for treatment implements, respectively, observing the lesion part 39 from right above with the endoscope 23 for treatment, as drawing 7 shows. For example, the lesion part 39 is excised with the high frequency snare incision implement 36, not gathering the lesion part 39 and having pulled by the grip forceps 32.

[0097]including the principal part of an observation optical system and an illumination-light study

system in the tip part 26, and including other members in the small tube 76, since a path with thick lateral cross sectional shape of the tip part 26 of the endoscope 23 for treatment is circular and the path thinner than it of the small tube 76 which has the bend 27 and the flexible tube part 28 is circular -- especially, structure of the small tube 76 can be simplified. Since the lateral cross sectional shape of the portion of the small tube 76 is a round shape, the disordered motion, such as inclining, when curving the small tube 76, is not caused.

[0098]Although the guide pipe 80 for treatment implements in this embodiment was explained as a case where only one is used, it may be made to arrange behind the tip part 26 of the endoscope 23 for treatment using the two guide pipes 80 for treatment implements. In this case, it may be made to form the one channel 82 for treatment implement insertion in each guide pipe 80 for treatment implements. The combination of each treatment implement to be used is not restricted to this example, either, and various kinds of combination which was mentioned above can be considered, for example.

[0099][An 8th embodiment] An 8th embodiment of this invention is described with reference to drawing 8.

[0100](Elements of the Invention) Although it is similar with the thing of a 1st embodiment mentioned above in this embodiment, an instrument with the treatment function considers it, the grip forceps 85 with a curve function, and the treatment implement 87 inserted in the guide pipe 86 for treatment implements with a curve function, for example, a high frequency treatment tool. The lateral cross sectional shape in the portion of the sheath 88 of the above-mentioned grip forceps 85 is fanning [ acute angle / angle / near the center ], The lateral cross sectional shape of the above-mentioned guide pipe 86 for treatment implements is obtuse angle angle [ of the angle near the center ] fanning, if the above two angles are doubled, it will become 180 degrees, and the lateral cross sectional shape of the total which doubled both becomes an abbreviated semicircle.

[0101]On the other hand, the lateral cross sectional shape of the endoscope 23 for treatment is an abbreviated semicircle, and it becomes an approximate circle form, and if both this semicircle and the semicircle by the side of the above-mentioned treatment function are doubled, that circular outer diameter is formed so that it may become small slightly rather than the inside diameter of the guide pipe 21 for instrument derivation which inserts in the above-mentioned treatment function member. That is, if the grip forceps 85, the guide pipe 86 for treatment implements, and three persons of the endoscope 23 for treatment are joined and summarized, it is constituted so that it can insert in in the inner hole of the guide pipe 21 for instrument derivation and may be assembled.

[0102](OPERATION) Unlike a 1st embodiment, the lateral cross sectional shape of the sheath 88 deals with treatment operation with the combination of a variant treatment implement and the treatment implement inserted in the guide pipe 86 for treatment implements.

[0103](EFFECT OF THE INVENTION) According to this embodiment, compared with the case where a treatment implement is used using the guide pipe for treatment implements, a measure can be taken using a large treatment implement. Therefore, it becomes possible to deal with a large polyp etc. easily.

[0104]The lateral cross sectional shape of total when each member of the side which has a treatment function assorts, and the lateral cross sectional shape of the guide pipe 21 for instrument derivation which inserts these in may be formed un-circularly [ the ellipse instead of a perfect circle, etc. ] (anomaly).

[0105][A 9th embodiment] A 9th embodiment of this invention is described with reference to drawing 9.

[0106](Elements of the Invention) The point that this embodiment differs from the thing of each old embodiment is in the place which included the illumination method of the simple type in a part of wall of the guide pipe 21 for instrument derivation. The illumination lens 90 of this illumination method is formed in the apical surface of that guide pipe 21 for instrument derivation. The battery which consists of the light guide fiber, the small halogen lamp, and cell of an illumination method is built in in the wall of the guide pipe 21 for instrument derivation. The lateral cross sectional shape of the endoscope 23 for treatment and the guide pipe 24 for

treatment implements with a curve function is a semicircle, respectively.

[0107](An operation and an effect) Since it constituted in this way, the illumination method of the guide pipe 21 for instrument derivation introduced in the tip to about 39 lesion part in the abdominal cavity along with the insert portion of an endoscope can be turned on, and the lesion part 39 can be illuminated. By the grip forceps 32 which assorted the endoscope 23 for treatment, and the guide pipe 24 for treatment implements with a curve function, was inserted into the guide pipe 21 for instrument derivation, and was inserted through the channel 42 for insertion formed in the endoscope 23 for treatment. The body cavity wall containing the lesion part 39 has been pulled, and it sutures with the automatic suture instrument 70. Various treatment implements can be inserted through the endoscope 23 for treatment, and the guide pipe 24 for treatment implements, and various treatment can be performed.

[0108]since the illumination method was included in the guide pipe 21 for instrument derivation, it becomes possible to reduce the number of the light guide of the illumination method of the endoscope 23 for treatment, and the outer diameter of the endoscope 23 for treatment can be made thin -- thereby, It becomes possible to make thick guide pipe 24 the very thing for treatment implements used simultaneously indirectly and relatively, and a large-sized treatment implement, and an automatic suture instrument and a supersonic vibration heat cautery cutter can be used now.

[0109]It will lend, if a light guide is embedded in all the walls of the guide pipe 21 for instrument derivation or white LED is harbored among them at a tip, and it may be made to constitute an illumination method from this embodiment. If the amount of illumination light of this illumination method is raised, at least an observing means is good and the endoscope 23 for treatment can make thick the path of the further narrow-diameter-izing of the endoscope 23 for treatment, or the guide pipe 24 for treatment implements, or its channel for treatment implement insertion by this.

[0110][A 10th embodiment] A 10th embodiment of this invention is described with reference to drawing 10.

[0111](Elements of the Invention) The shape of the tip part 26 of the endoscope 23 for treatment used in this embodiment inserting in the guide pipe 21 for instrument derivation, A rear part is cut off and removed from the tip middle of the thing of an artillery shell mold configuration at the angle of 45 slant, and the cylindrical part 91 which has an outer diameter smaller than the outer diameter of an artillery shell mold configuration into the open portion is formed in the form where the center was allowed to come near in one side. The maximum outer diameter of the tip part 26 is more slightly [ than the inside diameter of the guide pipe 21 for instrument derivation ] small, and the above-mentioned cylindrical part 91 is constituted so that it may enter in the outside field of the maximum outer diameter. The observation lens 29 of an observing means and the illumination lens 30 of the illumination method are allocated in the falcate stepped surface 92 formed in the portion of the difference of two outer diameters towards back slant.

[0112]The high frequency REZEKUTO treatment implement 94 with a curve function which has the sheath 93 of the sectional shape near the crescent shape of that level difference in the hollow position which counters this level difference is arranged. The high frequency REZEKUTO treatment implement 94 is formed at the tip of the sheath 93 in the circular high frequency wire 95, enabling a free attitude. The tip part 26 is made from insulating materials, such as a synthetic resin.

[0113](OPERATION) The high frequency REZEKUTO treatment implement 94 is assorted to the endoscope 23 for treatment, and these are used in the above-mentioned guide pipe 21 for instrument derivation, inserting together. For example, the endoscope 23 for treatment and the high frequency REZEKUTO treatment implement 94 are continuously inserted the guide pipe 21 for instrument derivation and assorted onto the esophagus 96 using the endoscope which is not illustrated, these are inserted into the above-mentioned guide pipe 21 for instrument derivation together, it projects in the abdominal cavity, and the lesion part 39 is checked. By guessing and pulling up, energizing on the circular high frequency wire 95 to the lesion part 39 (for example, the Barrett's epithelium and a tumor) produced in the cardiac region 98 of the boundary of the

esophagus 96 and the stomach 97 while observing back with the endoscope 23 for treatment, when checking the lesion part 39, they are \*\*\*\*\* and \*\* about the organization of the lesion part 39.

[0114](EFFECT OF THE INVENTION) From the first, since the place of the cardiac region 98 was narrow, observation tended to be difficult for it, and it tended to overlook the lesion part 39. moreover --- although the illness of the membrane of an inner surface of the cardiac region 98 called esophagitis regurgitica and the Barrett's epithelium is increasing --- its observation/treatment --- having been hard . Although the endoscope tip was inserted into the stomach 97 and being conventionally observed in the state of looking up from the stomach 97 side of the cardiac region 98 where a curve is applied at the tip of an endoscope 180 degrees or more, by this method, only the stomach 97 side is visible and an endoscope inserting part becomes obstructive also taking a measure. If a curve was made into 180 degrees or more, in order that the tip part 26 might be unsteady, the treatment implement aimed and there was a fault, like the lesion part 39 is not caught to a passage.

[0115]Since the cardiac region 98 has closed if an observation direction tends to take observation/measures with what is called a front direct viewing type endoscope from the esophagus 96 side, it pushes and becomes observation with being large. Since the wall and the tip have stuck, it will be in the red egg state said commonly, and only observation of the narrow range can be performed. [ near the cardiac region 98 ], since a wall becomes the observation and treatment from width, it cannot catch the lesion part 39 certainly, and treatment could not give it easily. moreover --- although observation becomes easy in the endoscope of a strabism type or a side \*\* type, will operate the clamp lift table established in the exit of the channel for treatment implement insertion of an endoscope, a treatment implement will be bent to an observation direction, and a motion of a treatment implement meets a wall --- the lesion part 39 --- \*\*\*\*\* --- it did not become a motion [ like ]. Since the treatment implement which can be inserted through the channel for treatment implement insertion was thinly limp, it was difficult to fully catch a wall.

[0116]By making an observation direction into unprecedented back strabism, and extending the cardiac region 98 in this embodiment, using the tip part 26 of the endoscope 23 for treatment, and the above-mentioned guide pipe 21 for instrument derivation, however, the former, observation and treatment --- having been hard --- observation and treatment can do the esophagus 96 side at once from the stomach 97 side of the cardiac region 98. A measure could be certainly taken with taking a measure gradually, lengthening a treatment implement and the endoscope 23 for treatment simultaneously, observing the lesion part 39 nearby.

[0117]Since a treatment implement and the endoscope 23 for treatment are independently, it fixes, and the tip of the endoscope 23 for treatment carrying out fixed point observation of the lesion part 39, it can lengthen and it can be moved so that a treatment implement may be bent and the wall of the esophagus 96 may be met.

[0118]In the case of the Barrett's epithelium, a therapy becomes \*\*\*\*\* and \*\*\*\*\* about the perimeter, but. Since the sheath was thin in it being a treatment implement which lets the channel for treatment implement insertion of an endoscope pass, the waist was weak, and since a tip was not made greatly, the area with which it deals decreased, a measure needed to be repeatedly taken to dealing with the perimeter, and it was troublesome. However, since the portions of a treatment implement, especially the high frequency wire 95 can be lengthened in this embodiment, the number of times which deals with the perimeter is made few.

[0119]In addition, observation/treatment of the pyloric part of stomach which is narrow similarly are also possible. The narrow segment of the duodenum, etc. are considered.

[0120]30 degrees, 60 etc. degrees, etc. may carry out the angle of back strabism by changing the angle of a cut of the portion of the stepped surface 92 of this embodiment, or changing an optical system. The tip of the guide pipe 21 for instrument derivation is cut aslant, and it may be made to use a short side for treatment operation. They may be argon plasma laser, a high frequency cautery implement with a roller, etc. besides what was mentioned above as a treatment implement to be used.

[0121]Since the endoscope whose solid state image pickup device was [ the endoscope for

treatment furthermore inserted in the guide pipe 21 for instrument derivation ] large and which was excellent in observation capability is suitable, About the tip end part which builds in a solid state image pickup device, it is considered as big circular lateral cross sectional shape, and a bend and an insert portion are good also as a thing of small un-circular lateral cross sectional shape compared with this.

[0122]Although the lateral cross sectional shape of the whole which the instrument put into the inner hole of the above-mentioned guide pipe for instrument derivation and this combined was an approximate circle form in the embodiment mentioned above, it may be a thing of not only it but an ellipse, an ellipse, or other shape in this invention.

[0123]In order to make smoother the individual attitude of the endoscope for treatment, and treatment units, it slides on an outside surface, using the material which slides on each and is excellent in a sex, and may be made to carry out a sexual good coat. The same coat as the inner surface of the guide pipe which inserts the endoscope for treatment and a treatment-units instrument may be given.

[0124]The guide pipe for instrument derivation inserted into the <additional remark> 1. abdominal cavity, and at least one endoscope for treatment inserted in the inner hole of the above-mentioned guide pipe for instrument derivation enabling a free attitude, At least one treatment implement unit inserted in the inner hole of the above-mentioned guide pipe for instrument derivation enabling a free attitude is provided, The outline shape of the cross section of at least one thing has a portion of the arc of a path slightly smaller than the path of the inner hole of the above-mentioned guide pipe for instrument derivation among the above-mentioned endoscope and the above-mentioned treatment implement unit, An endoscope therapeutic device constituting so that the outline shape of the cross section of the combined whole may turn into shape which has a path slightly smaller than the path of the inner hole of the above-mentioned guide pipe for instrument derivation, when putting into the above-mentioned guide pipe for instrument derivation combining the above-mentioned endoscope and the above-mentioned treatment implement unit.

[0125]2. Endoscope therapeutic device given in the 1st paragraph provided with the 2nd endoscope for deriving above-mentioned guide pipe for instrument derivation in the abdominal cavity.

3. Make a part of [ in at least one side of an endoscope and a treatment implement unit ] lateral cross sectional shape into the un-circular shape which has a circle in part, and. An endoscope therapeutic device, wherein lateral cross sectional shape as the path of this circle was slightly made smaller than the radius of the inner hole of the guide pipe for instrument derivation and it became outside about the portion of that circle, when [ whole ] the above-mentioned endoscope and a treatment implement unit are combined becomes an approximate circle form.

[0126]4. Endoscope therapeutic device given in the 3rd paragraph, wherein un-circular shape of a part of [ in at least one side of an endoscope and a treatment implement unit ] lateral cross sectional shape is combined form with curve different from circle.

5. Endoscope therapeutic device given in the 3rd paragraph, wherein un-circular shape is combined approximately fan shape of circle and straight line.

[0127]6. Endoscope therapeutic device given in the 1st paragraph, wherein both sectional shape of endoscope and treatment implement unit is abbreviated semicircles and both sectional shape when [ whole ] endoscope and treatment implement unit are combined is approximate circles.

7. Endoscope therapeutic device given in the 1st paragraph, wherein both sectional shape of endoscope and treatment implement unit is approximately sectors.

8. Endoscope therapeutic device given in the 1st paragraph that treatment implement unit possesses curve function and is characterized by things.

[0128]9. Endoscope therapeutic device given in the 1st paragraph, wherein treatment implement unit is what has guide pipe for treatment implements possessing curve function.

10. An endoscope therapeutic device given in the 1st paragraph, wherein a treatment implement unit consists of at least two or more things.

11. An endoscope therapeutic device given in the 1st paragraph characterized by the thing of the guide pipe for treatment implements established for the curve function in part at least.

[0129]12. An endoscope therapeutic device given in the 1st paragraph, wherein one of a treatment implement unit is a treatment implement at least and one more is a treatment implement insertion guide pipe.

13. An endoscope therapeutic device given in the 1st paragraph, wherein an endoscope possesses a treatment implement insertion pipeline.

14. An endoscope therapeutic device given in the 1st paragraph, wherein the guide pipe for treatment implements has at least one or more treatment implement insertion pipelines.

[0130]15. An endoscope therapeutic device given in the 1st paragraph, wherein the guide pipe for instrument derivation has an illumination method.

16. An endoscope therapeutic device given in the 1st paragraph giving a lubricating treatment to the inner surface of the guide pipe for instrument derivation, the outside surface of the treatment implement unit of a portion inserted in the guide pipe for instrument derivation, and the outside surface of the 2nd endoscope inserted in the guide pipe for instrument derivation.

17. An endoscope therapeutic device given in the 1st paragraph, wherein the tip of the guide pipe for instrument derivation and the tip of the endoscope inserted in the guide pipe for instrument derivation are formed in the shape cut aslant.

[0131]18. An endoscope therapeutic device given in the 1st and 2 paragraph, wherein the observation direction of the endoscope inserted in the guide pipe for instrument derivation is side \*\*.

19. An endoscope therapeutic device given in the 2nd paragraph, wherein the observation direction of the endoscope inserted in the guide pipe for instrument derivation is back strabism.

20. An endoscope therapeutic device given in the 2nd paragraph, wherein the observation direction of the endoscope inserted in the guide pipe for instrument derivation is front strabism.

21. An endoscope therapeutic device given in the 2nd paragraph, wherein the endoscope inserted in the guide pipe for instrument derivation possesses the channel for treatment implement insertion and has a \*\* skillful stage of a treatment implement in the tip opening of the channel for treatment implement insertion of the tip part of the endoscope.

## [0132]

[Effect of the Invention] Since at least one endoscope and at least one treatment implement unit can be assorted, and the back can put them in, they can be carried out and can be used into the led guide pipe for instrument derivation to near the lesion part in the abdominal cavity according to this invention as explained above, it becomes easier to take measures than the conventional case. That is, observing an extensive lesion part from a distant view by making the endoscope for treatment, and a treatment implement unit become independent, and supposing separately that it is operational, if necessary, it is possible to take a measure as it is also with a large-sized treatment implement. By using a large-sized treatment implement, a big lesion can be excised collectively and there is an advantage of being able to carry out excision of a wide area lesion part or the lesion part which permeated deeply by the small number of times in a short time. If it is not the partial excision, a specimen with few cutting planes will be obtained and it will be easy to do the biopsy of excision samples. Moreover there is little bleeding and, in the case of tumors, such as cancer, diffusion transition can be prevented.

[0133] A suitable operation can be conducted easily and promptly rather than before within the abdominal cavity by constituting from various gestalten combining the guide pipe for instrument derivation, the endoscope for treatment inserted in this, and various kinds of treatment implement units, observing the whole treatment situation of an extensive lesion part.

[0134] Since lateral cross sectional shape of one of instruments is made into the thing except circular at least and two or more instruments are combined, it can constitute from this invention so that both instruments may not be made thin as much as possible.

[0135] If the end of the guide pipe for instrument derivation is held near the lesion part, the former, In the endoscope of accepting reality, it comes to be able to do approach from a lesion part by making into side \*\* the observation direction of the endoscope which the back puts in also with the part which was able to do only approach from the side, for example etc., and becomes easy to take measures.

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[Translation done.]

**\* NOTICES \***

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- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.\*\*\*\* shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

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**DESCRIPTION OF DRAWINGS**

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**[Brief Description of the Drawings]**

[Drawing 1]The perspective view showing the condition of use of the endoscope therapeutic device concerning a 1st embodiment.

[Drawing 2]The perspective view showing the condition of use of the endoscope therapeutic device concerning a 2nd embodiment.

[Drawing 3]The perspective view showing the condition of use of the endoscope therapeutic device concerning a 3rd embodiment.

[Drawing 4]The perspective view showing the condition of use of the endoscope therapeutic device concerning a 4th embodiment.

[Drawing 5]The perspective view showing the condition of use of the endoscope therapeutic device concerning a 5th embodiment.

[Drawing 6]The perspective view showing the condition of use of the endoscope therapeutic device concerning a 6th embodiment.

[Drawing 7]The perspective view showing the condition of use of the endoscope therapeutic device concerning a 7th embodiment.

[Drawing 8]The perspective view showing the condition of use of the endoscope therapeutic device concerning an 8th embodiment.

[Drawing 9]The perspective view showing the condition of use of the endoscope therapeutic device concerning a 9th embodiment.

[Drawing 10]The perspective view showing the condition of use of the endoscope therapeutic device concerning a 10th embodiment.

[Drawing 11]The perspective view showing the condition of use of the conventional endoscope therapeutic device.

[Drawing 12]The perspective view showing the condition of use of the conventional endoscope therapeutic device.

**[Description of Notations]**

21 [ — A lesion part, 32 / -- A grip forceps, 36 / — A high frequency snare incision implement, 35 / -- A treatment implement unit, 37 / -- A treatment implement unit, 38 / — The stomach, 39 / — Lesion part. ] — The guide pipe for instrument derivation, 23 — The endoscope for treatment, 24 — The guide pipe for treatment implements, 39

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[Translation done.]